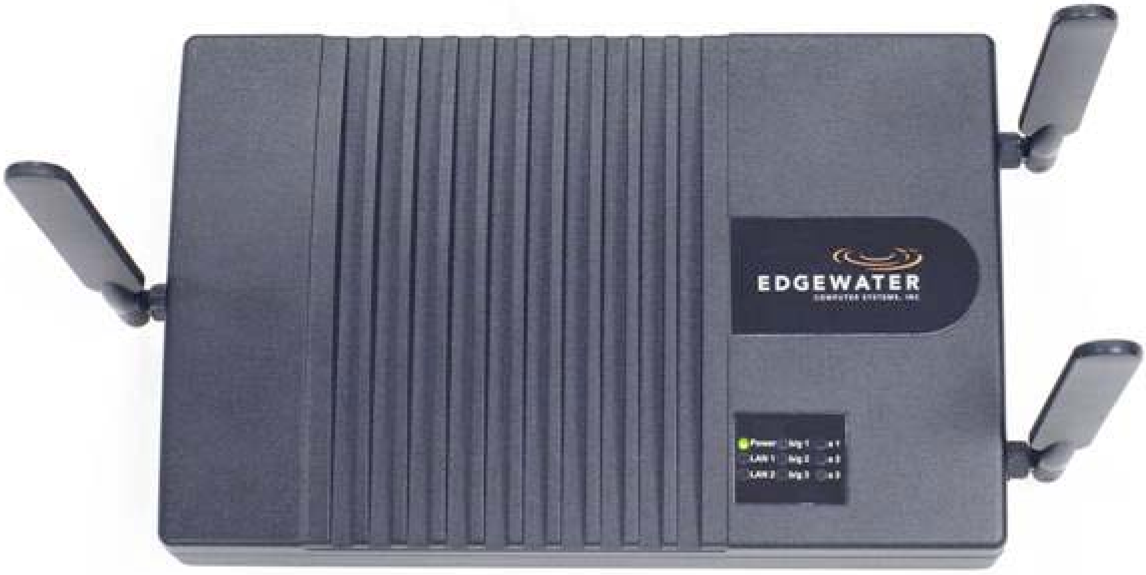
EDGEWATER
COMPUTER SYSTEMS, INC

EAP3030/1-I User Documentation



Users Manual

Version 1.2

Edgewater Computer Systems, Inc.

EAP3000 Users Manual

Version 1.2

Revision History

Date	Version	Description	Author
Jan. 15, 2009	0.1	Preliminary	Edgewater
Dec. 8, 2009	0.2	Added images and corrections	Edgewater
Mar. 15, 2010	1.0	Corrections	Edgewater
May 30, 2010	1.1	Added Images	Edgewater
June 12, 2010	1.2	Amended Images	Edgewater

Table of Contents

1 QuickStart

1. The unit can be powered one of two ways either with the supplied AC adapter or with PoE (Power over Ethernet) enabled 10/100 Ethernet cable into the RJ45 jack as illustrated in Figure 1
2. Mount EAP3030/1-I on wall mount using the wall mounting plate as shown in Figures 2 to 4 or as required on a flat surface.
3. After applying power to the unit allow 30 seconds for software boot-up.
4. Log into unit.

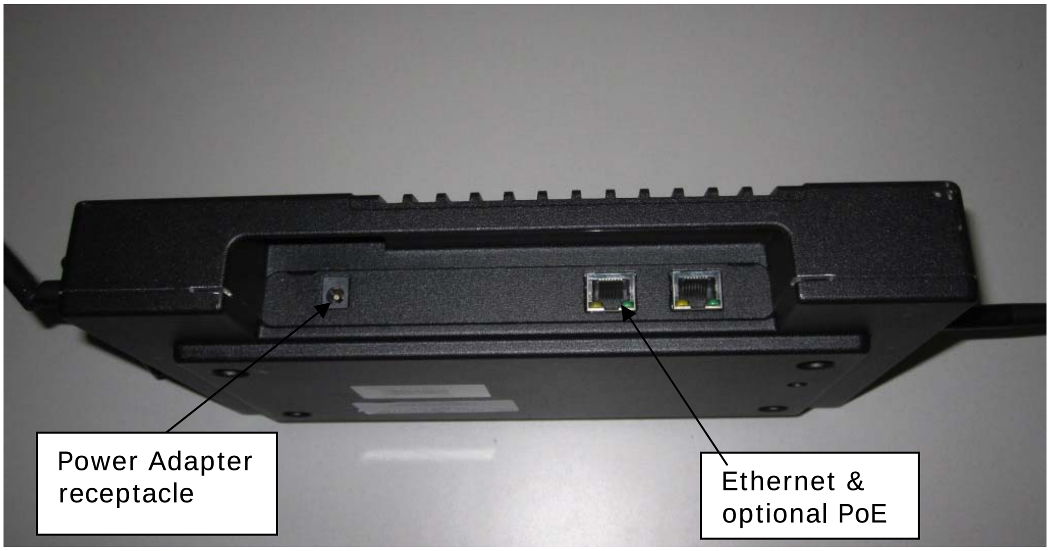


Figure 1 - Power and Ethernet Rear-panel Connections

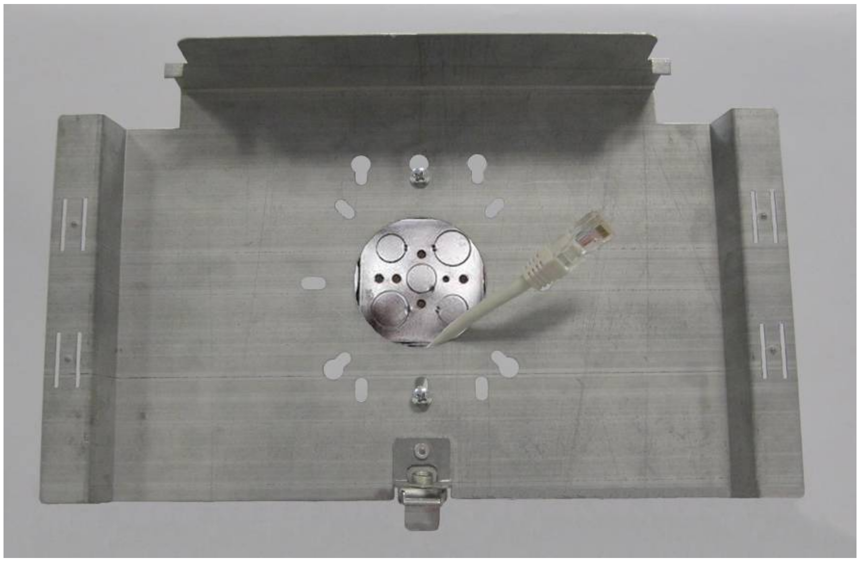


Figure 2 – Mounting Plate

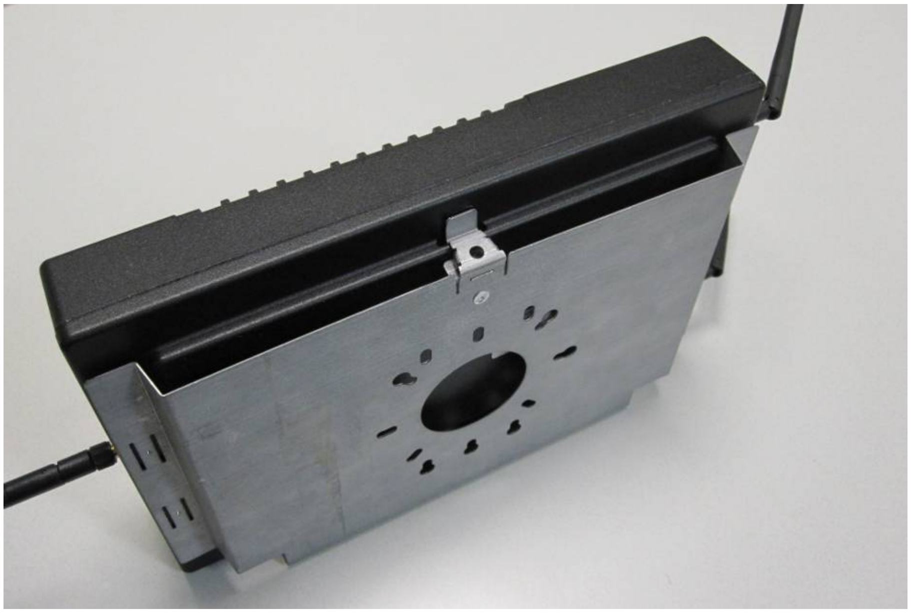


Figure 3 – Mounting Plate Bottom Clip

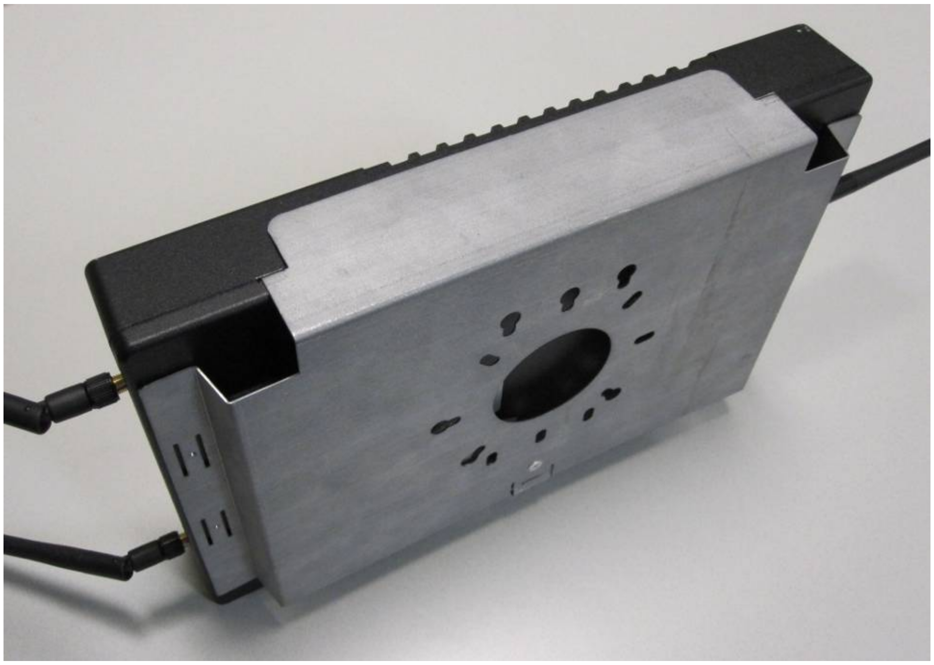


Figure 4 – Mounting Plate Top Clip

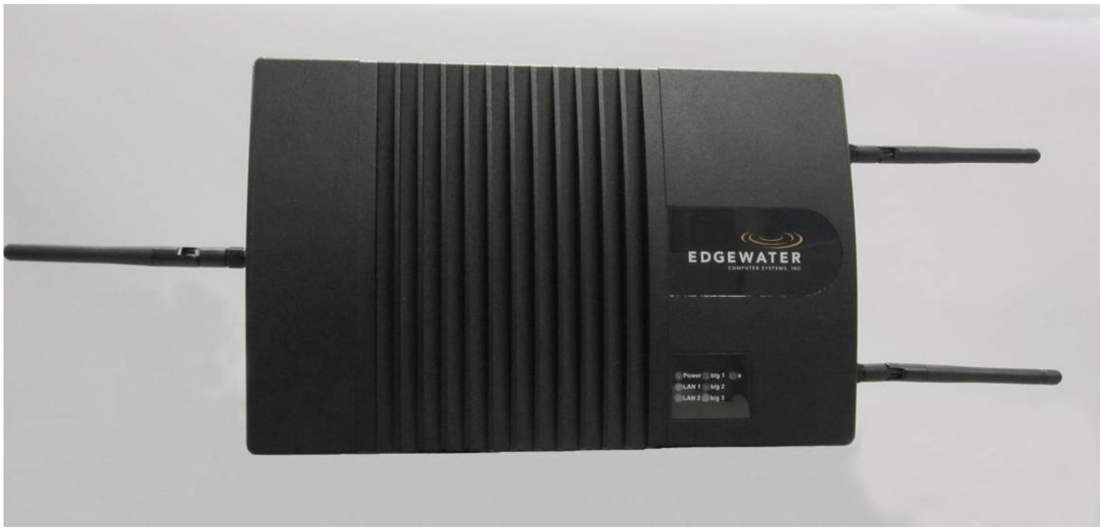
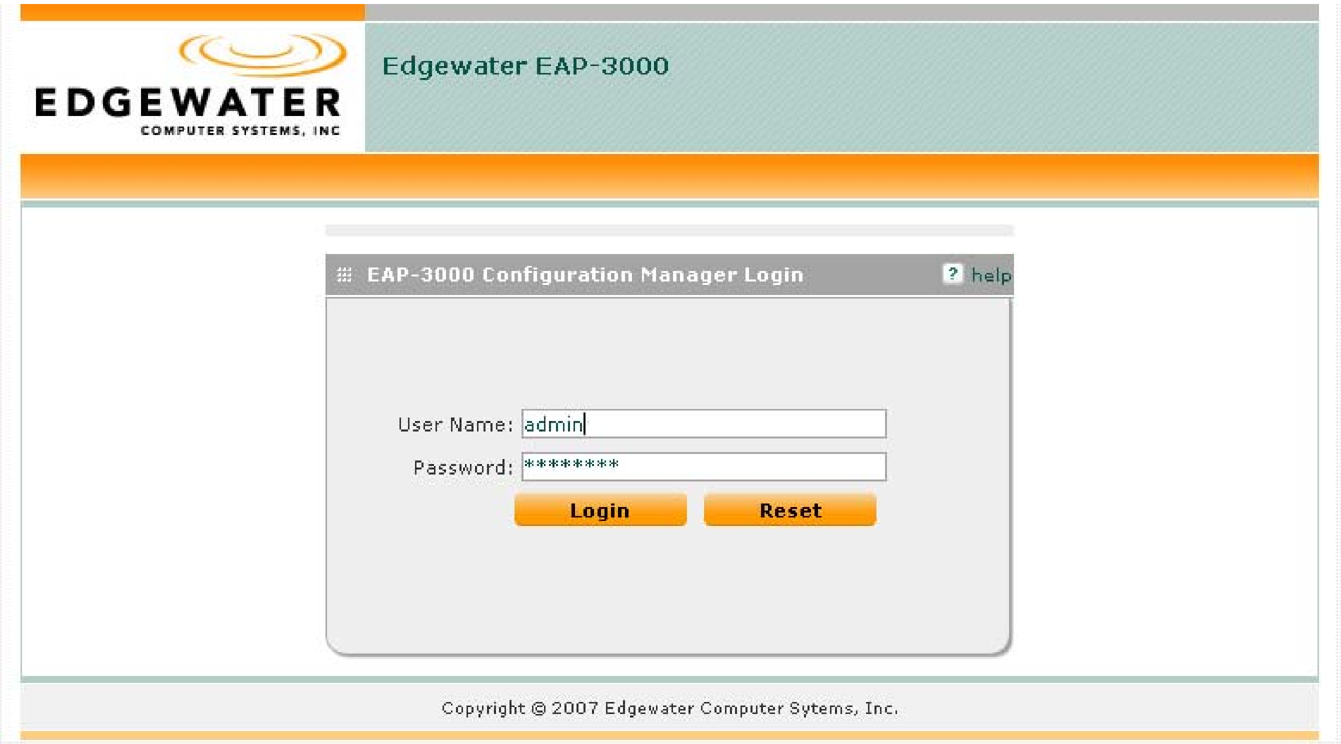


Figure 5 – EAP3031 on Mounting Plate

2 Login

Welcome to the Edgewater EAP3000

The login page authenticates users and ensures that only authorized users can view or modify this device's settings.



EDGEWATER
COMPUTER SYSTEMS, INC
Edgewater EAP-3000
EAP-3000 Configuration Manager Login
? help

User Name: admin
Password: ********

Login
Reset
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Login username and password

The device accepts two types of logins, one with administrative privileges and one with guest privileges. With administrative privileges, you can view and also modify the configuration of the access point. Logging in with guest privileges will only allow you to view the existing configuration, but not to change it.

Enter the username and password on this page to login to the router and view/edit its configuration. The default user names are mentioned on the label at the bottom of the router.

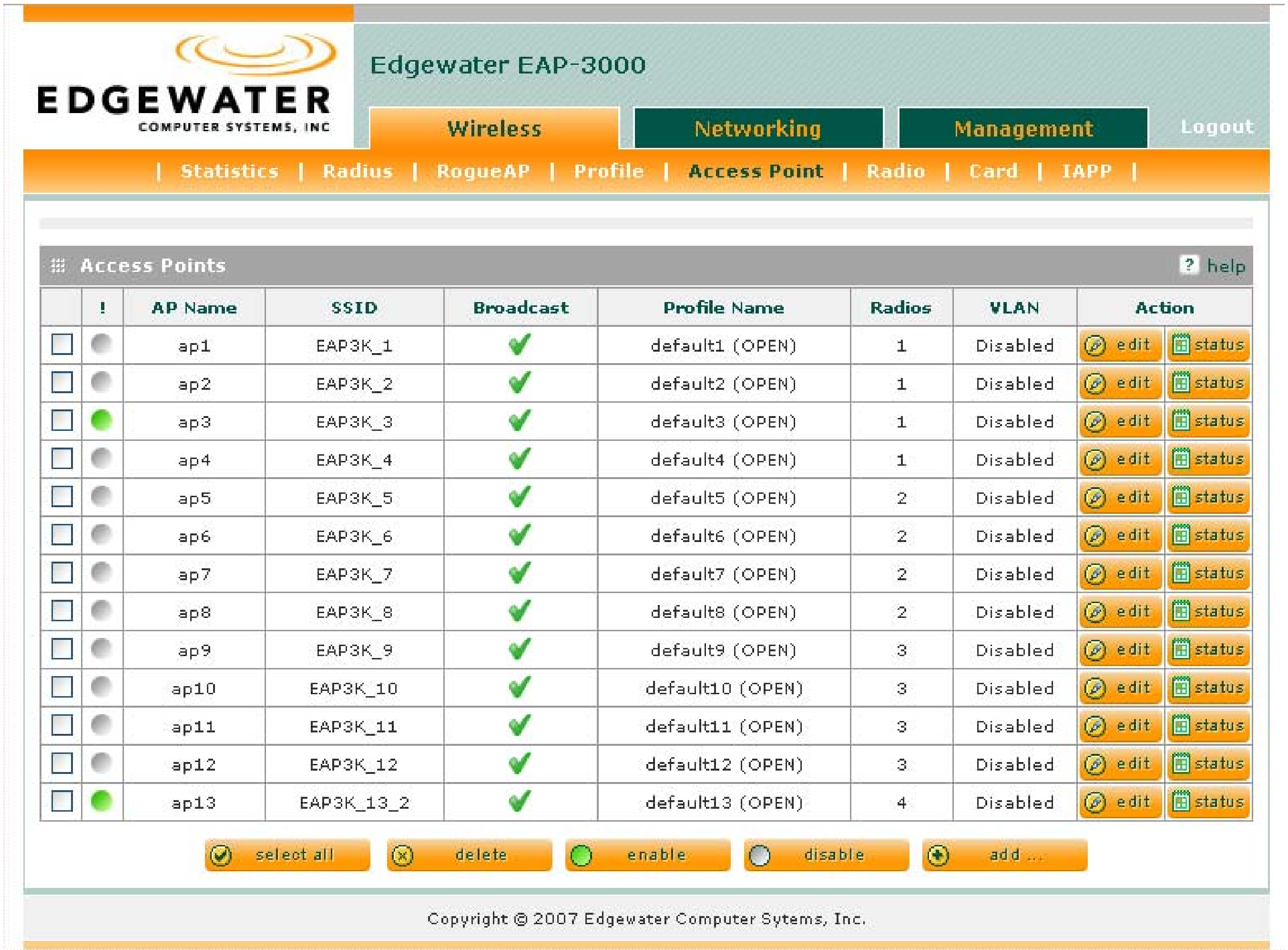
Session Timeout

Once logged in, the router will maintain a session for the login. If there is no modification or access for a specified period, the session will expire and you will be asked to login again. The default idle session time is five minutes, but can be changed by logging in and updating the timeout value in the Management -> Users page.

3 Wireless

3.1 Wireless -> Access Point

The AP table displays the list of configured Access Points for this device. From this summary list, status and parameters of each AP are available for display or configuration.



	!	AP Name	SSID	Broadcast	Profile Name	Radios	VLAN	Action
□	○	ap1	EAP3K_1	✓	default1 (OPEN)	1	Disabled	edit status
□	○	ap2	EAP3K_2	✓	default2 (OPEN)	1	Disabled	edit status
□	●	ap3	EAP3K_3	✓	default3 (OPEN)	1	Disabled	edit status
□	○	ap4	EAP3K_4	✓	default4 (OPEN)	1	Disabled	edit status
□	○	ap5	EAP3K_5	✓	default5 (OPEN)	2	Disabled	edit status
□	○	ap6	EAP3K_6	✓	default6 (OPEN)	2	Disabled	edit status
□	○	ap7	EAP3K_7	✓	default7 (OPEN)	2	Disabled	edit status
□	○	ap8	EAP3K_8	✓	default8 (OPEN)	2	Disabled	edit status
□	○	ap9	EAP3K_9	✓	default9 (OPEN)	3	Disabled	edit status
□	○	ap10	EAP3K_10	✓	default10 (OPEN)	3	Disabled	edit status
□	○	ap11	EAP3K_11	✓	default11 (OPEN)	3	Disabled	edit status
□	○	ap12	EAP3K_12	✓	default12 (OPEN)	3	Disabled	edit status
□	●	ap13	EAP3K_13_2	✓	default13 (OPEN)	4	Disabled	edit status

! (Status): An AP can be disabled if not in use and enabled as needed. The AP is disabled if the status light is grey and it is enabled if the status light is green. Disabling an AP does not delete the configuration, but stops the AP. Enabling the AP creates a wireless network where computers and other devices can join and communicate with the devices connected to the access point or the devices on the local area network (LAN).

AP Name: This is AP identifier which uniquely identifies AP in the list of configured APs.

SSID: the name or SSID (service set identifier) is the name of the wireless network serviced by this AP; it is configured on the Profile page and later associated with AP by selecting it from the profile drop down box. Note that a given wireless profile can be common to multiple APs, and so the SSID is not unique to an AP. In order for the computers or devices to communicate via this wireless network serviced by this AP, all devices must select the same SSID from the list of wireless networks in the area.

Broadcast: The icon here indicates whether SSID is broadcasted or not in the beacon frames transmitted by the AP. If SSID is not broadcast then wireless devices will not be able to see the network name (SSID). The green tick mark indicates that the AP's SSID is broadcasted to the public; the red 'cancel' icon indicates the SSID is not broadcasted and a device would have to specify the SSID exactly to connect to this AP.

Profile: This field has a brief description of the security, encryption and authentication combination assigned to the AP. A Profile is not necessarily unique to an AP; rather this grouping of wireless settings can be used on more than one AP at the same time.

Radio: The physical radio(s) on which this AP is running on. An AP can run on multiple radios at the same time for load-balancing and better throughput.

VLAN: The AP can be part of a logical network defined by the VLAN id; this allows devices connected to the VLAN through this AP to exchange data with one another as in a LAN.

Action/Edit: The edit button will link to the AP Configuration page, allowing you to change the profile, radio, mode, etc. that is used by this AP.

Action/Status: The status button will link to a statistics page for this AP, displaying traffic statistics for the AP and the list of the connected clients.

The actions that can be taken on APs are:

Select All: Select all the APs in the table

Enable: Enable the selected APs

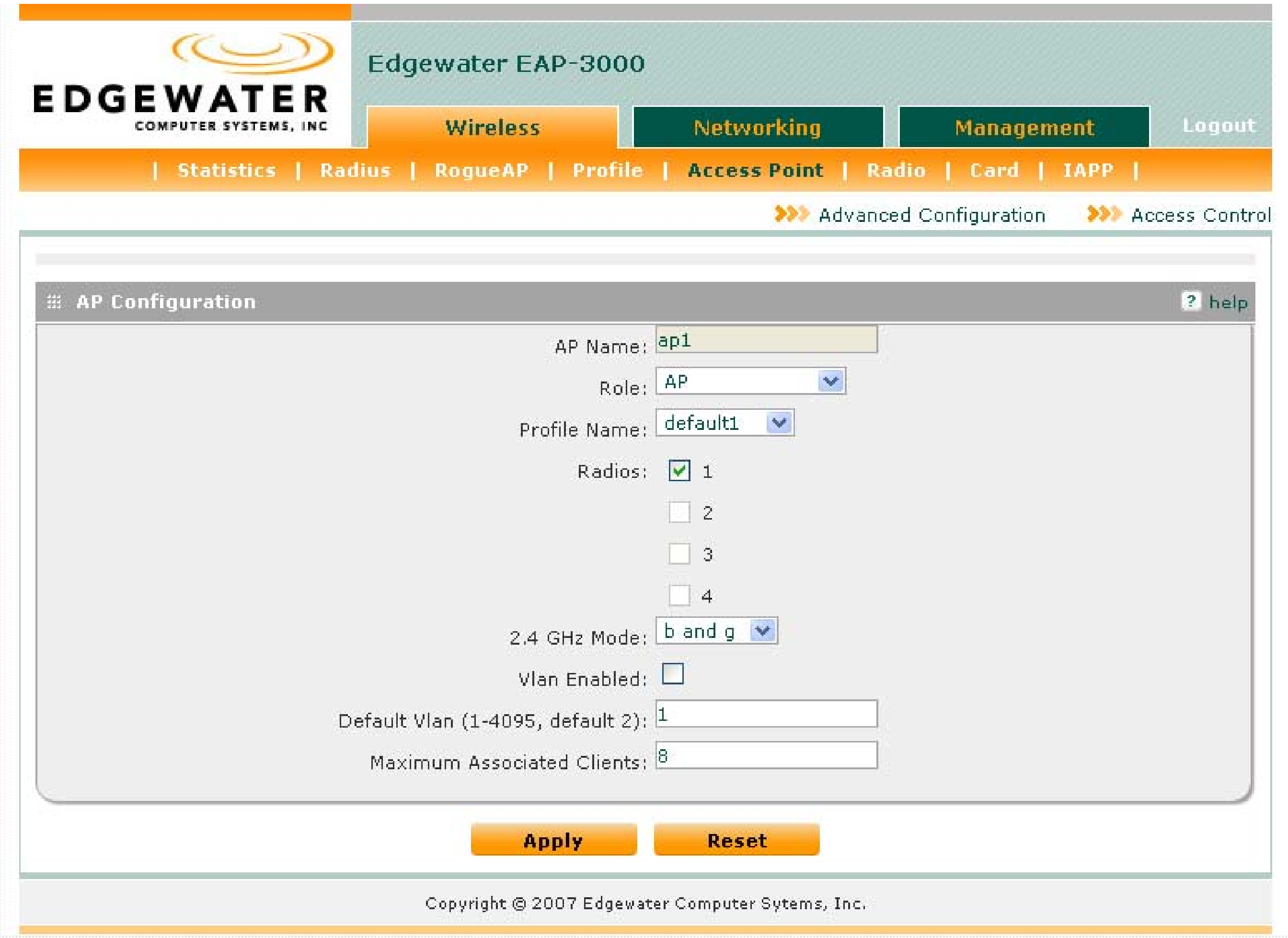
Disable: Stops the selected APs

Delete: Stops and deletes the selected AP or APs

Add: Add a new AP

3.2 Wireless -> Access Point -> AP Configuration

This page allows you to add a new AP or edit the configuration of an existing AP. The details will then be displayed in the AP table on the main Access Points page under the Wireless menu.



AP Name:	ap1
Role:	AP
Profile Name:	default1
Radios:	☑ 1
	□ 2
	□ 3
	□ 4
2.4 GHz Mode:	b and g
Vlan Enabled:	□
Default Vlan (1-4095, default 2):	1
Maximum Associated Clients:	8

AP Name: This is the unique name of the AP selected to be configured.

Role: The AP can act as a traditional Access Point device, WDS repeater, or WDS Root. When AP is configured as a WDS repeater, it acts like a wireless client and can connect to an AP configured in WDS Root mode on another EAP3000 device. A successful connection to WDS Root AP creates a WDS link and the traffic from the clients connected to other APs on this EAP3000 device is forwarded over the WDS link (only the broadcast traffic and the traffic destined to other devices which is not connected to APs on this EAP3000 device is forwarded). Note that when AP is configured in WDS repeater mode or WDS Root mode, clients will not be able to connect to this AP.

Profile Name: choose the encryption and authentication methods to be used by clients connecting to this AP from the dropdown list of profiles. This list is populated by adding profiles in the Profile menu.

Radio: Select the physical radio(s) on which this AP will run; an AP can run on more than one radio.

Mode: this selects the 802.11 modulation technique. This device supports 802.11b and 802.11g modes. Select g only if all devices in the wireless network can support 802.11g. Select b only mode if other devices and computers in the network can only support 802.11b. Select g and b if there will be some devices in this wireless network that will use 802.11g and some that will use 802.11b.

VLAN Enabled: Select this check box to tag the traffic received from connected clients with this AP with a VLAN id.

Default VLAN: VLAN id which will be used to tag the traffic from connected clients.

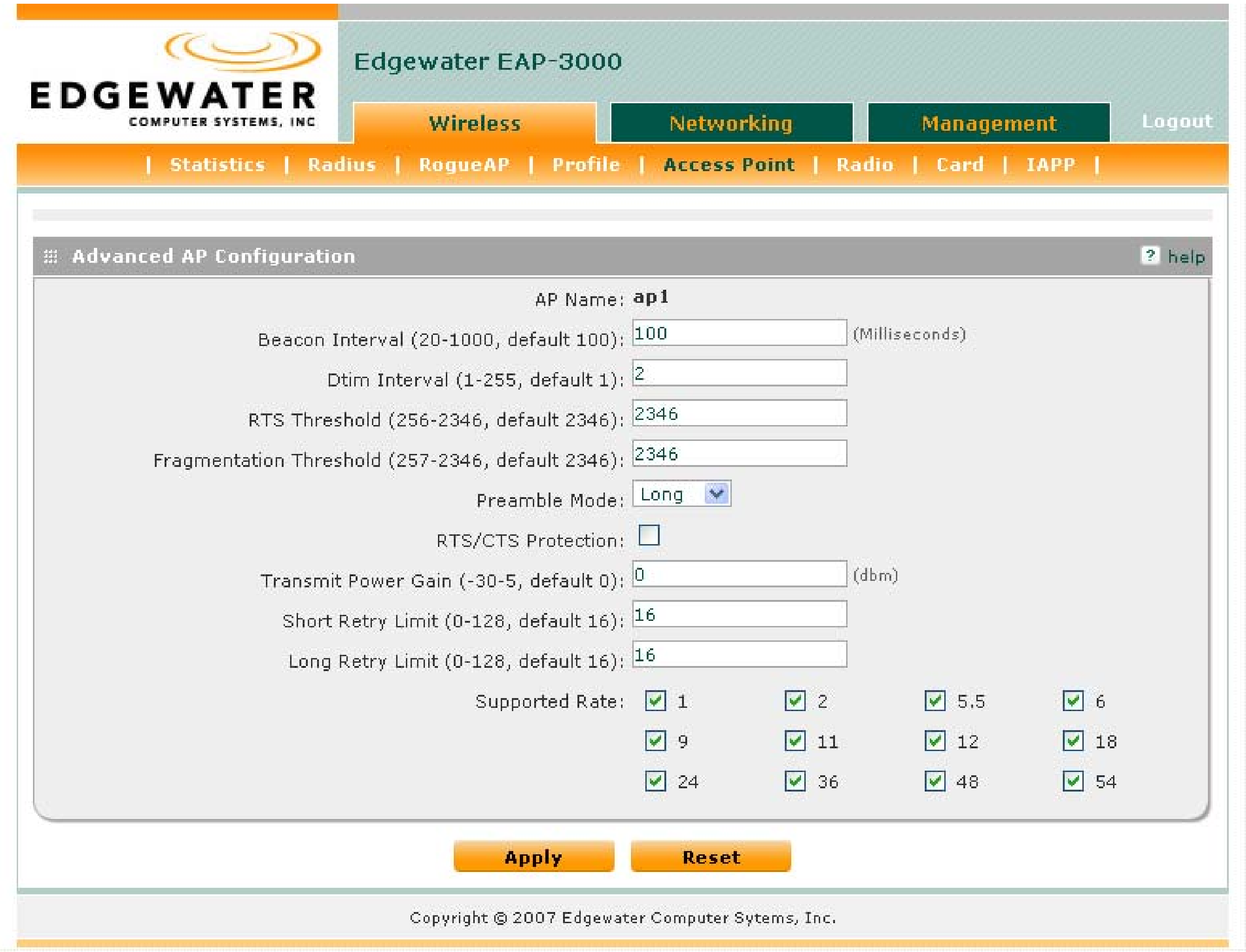
Maximum Associated Clients: The maximum number of clients that can connect to this AP.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

3.3 Wireless -> Access Point -> AP Configuration -> Advanced Configuration

This page is used to specify advanced configuration details.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Wireless
Networking
Management
Logout
| Statistics | Radius | RogueAP | Profile | Access Point | Radio | Card | IAPP |
Advanced AP Configuration
? help
Apply
Reset
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AP Name: ap1

Beacon Interval (20-1000, default 100): 100 (Milliseconds)

Dtim Interval (1-255, default 1): 2

RTS Threshold (256-2346, default 2346): 2346

Fragmentation Threshold (257-2346, default 2346): 2346

Preamble Mode: Long

RTS/CTS Protection: □

Transmit Power Gain (-30-5, default 0): 0 (dbm)

Short Retry Limit (0-128, default 16): 16

Long Retry Limit (0-128, default 16): 16

Supported Rate: ☑ 1 ☑ 2 ☑ 5.5 ☑ 6
☑ 9 ☑ 11 ☑ 12 ☑ 18
☑ 24 ☑ 36 ☑ 48 ☑ 54

AP Name: This is the name of the AP that was selected to be configured.

Beacon Interval: enter the amount of time in milliseconds between beacon transmissions.

Dtim Interval: this interval sets when the delivery traffic indication message is sent; related to beacon interval.

RTS Threshold: the Request to Send (RTS) threshold is the value the AP checks against its transmitting frames to determine if the RTS/CTS handshake is required with the receiving client. Using a small value causes RTS packets to be sent more often, consuming more of the available bandwidth, therefore reducing the apparent throughput of the network packet. The default is 2346, which effectively disables RTS.

Fragmentation Threshold: this is the maximum length of the frame, beyond which packet must be broken up (fragmented) into two or more frames. Collisions occur more often for long frames because sending them occupies the channel for a longer   The default is 2346, which effectively disables Fragmentation.

Preamble mode: 802.11b requires that a preamble be prepended to every frame before it is transmitted to the air. That preamble may be either the traditional "long" preamble, which requires 192 µs for transmission, or it may be an optional "short" preamble that requires only 96 µs.   Long preamble is needed for the compatibility with legacy 802.11 systems operating at 1 and 2 Mbps. The default is “long”.

RTS/CTS protection: select to always do RTS/CTS handshake before transmitting a packet; it is generally used to minimize collisions among hidden stations

Transmit Power Gain: define the relative amplification (gain) in dbm for transmitted packets which is added to the TX power configured on the physical radio.

Retry Limit: This limits the number of retries the AP will use when a frame transmission fails. It is used for both long and short frames, of size less than or equal to the RTS threshold.

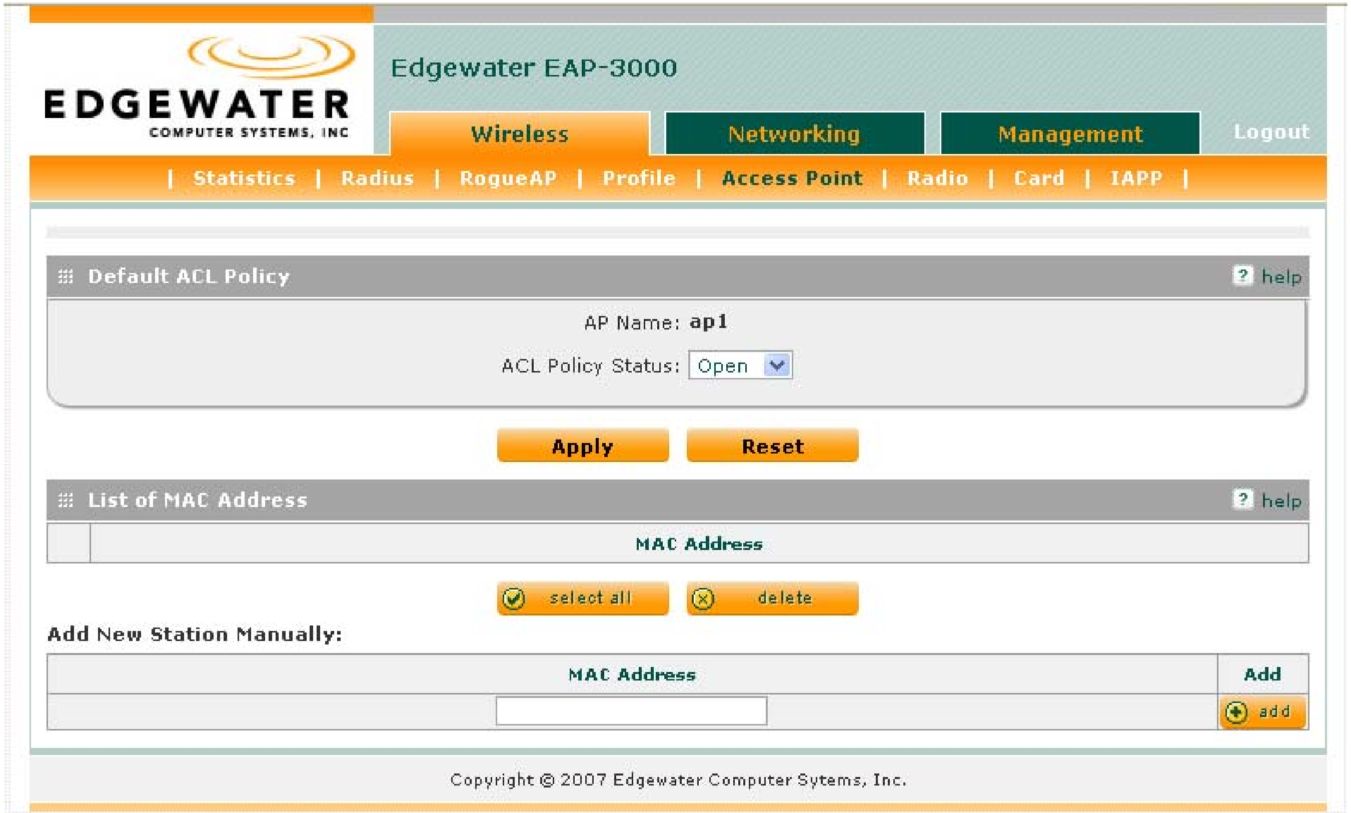
Supported Rate: Select the rate or rates (in Mbps) which AP will advertise in the beacon frames; at least 1 checkbox must be selected.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

3.4 Wireless -> Access Point -> AP Configuration -> Access Control

This page allows you to define specific MAC addresses to permit or deny connections to the selected AP. The default is “open” access, which does no filtering on specific MAC addresses.



AP Name: ap1

ACL Policy Status: Open

Default ACL Policy

AP Name: This is the name of the AP that is being configured.

ACL Policy Status: Select between Allow, Deny, or Open. Allow would only permit MAC addresses in the List below to connect to the AP. Deny would prevent any clients with a MAC address in the List below to connect to the AP. Open allows any clients to connect and does not filter using the list of MAC addresses below.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

List of MAC Addresses

This list shows all the MAC addresses of computers and devices which is authorized/unauthorized (based on the default ACL Policy) to connect to this access point.

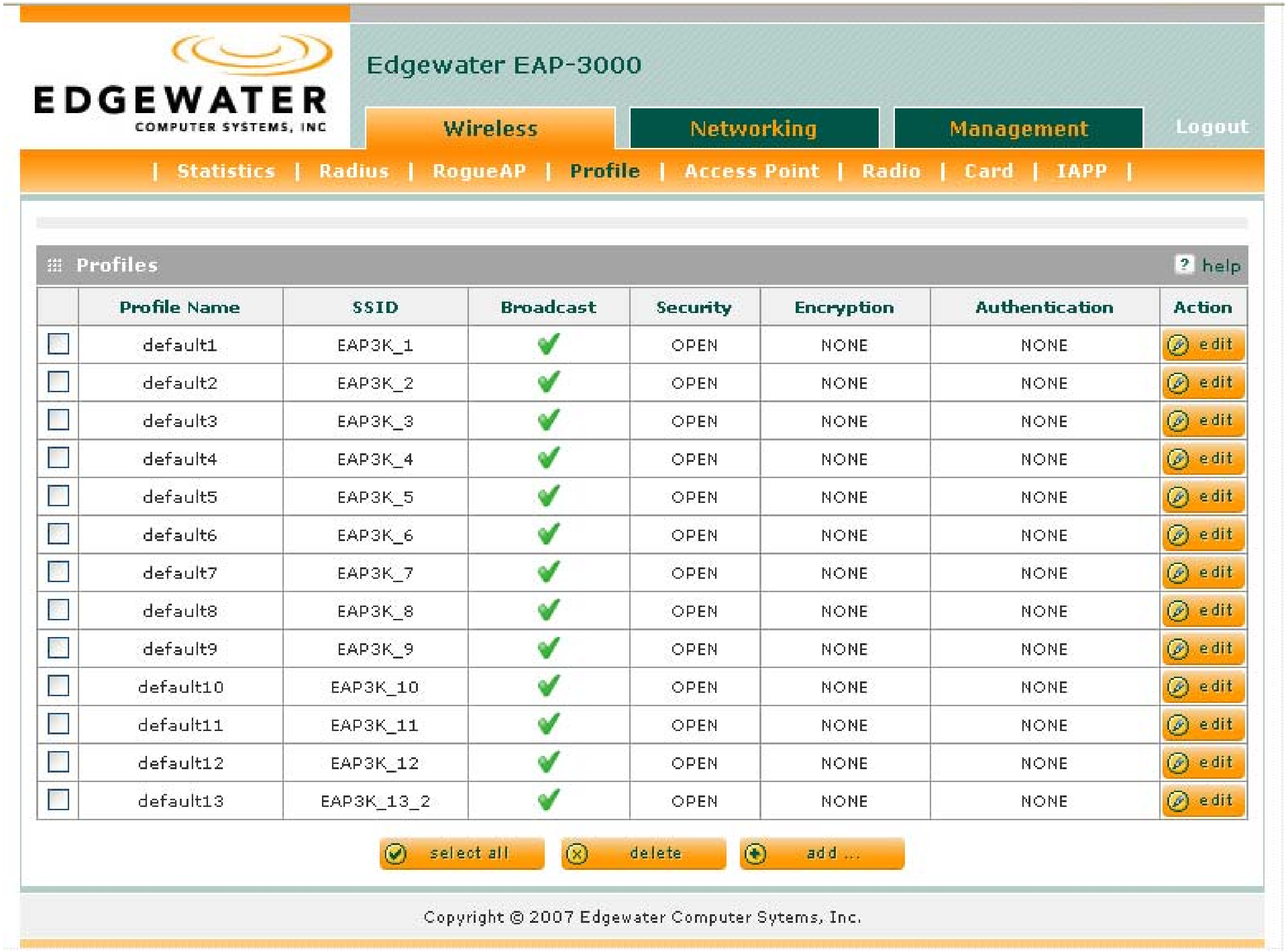
Select All: Select all the MAC addresses in the list

Delete: Delete the selected MAC address or addresses from the list

Add New Station Manually: enter the MAC address of the client that you would like to add to the list of MAC address above.

3.5 Wireless -> Profiles

A profile is a definition of generic wireless settings which can be shared across multiple APs. AP-specific settings are configured from the AP page. The profile allows for easy duplication of SSIDs, security settings, encryption methods, client authentication, etc. across APs.



	Profile Name	SSID	Broadcast	Security	Encryption	Authentication	Action
□	default1	EAP3K_1	✓	OPEN	NONE	NONE	edit
□	default2	EAP3K_2	✓	OPEN	NONE	NONE	edit
□	default3	EAP3K_3	✓	OPEN	NONE	NONE	edit
□	default4	EAP3K_4	✓	OPEN	NONE	NONE	edit
□	default5	EAP3K_5	✓	OPEN	NONE	NONE	edit
□	default6	EAP3K_6	✓	OPEN	NONE	NONE	edit
□	default7	EAP3K_7	✓	OPEN	NONE	NONE	edit
□	default8	EAP3K_8	✓	OPEN	NONE	NONE	edit
□	default9	EAP3K_9	✓	OPEN	NONE	NONE	edit
□	default10	EAP3K_10	✓	OPEN	NONE	NONE	edit
□	default11	EAP3K_11	✓	OPEN	NONE	NONE	edit
□	default12	EAP3K_12	✓	OPEN	NONE	NONE	edit
□	default13	EAP3K_13_2	✓	OPEN	NONE	NONE	edit

Profile Name: this is the unique (alphanumeric) identifier of this wireless profile.

SSID: this is the Service Set Identifier that clients use to connect to the AP that has this profile; it is referenced in the AP tables and statistics.

Broadcast: The icon here indicates whether this profile will configure the assigned AP to broadcast its SSID or not.. The green tick mark indicates that SSID is marked to be broadcasted; the red 'cancel' icon indicates the SSID is marked to not to be broadcasted and a device would have to specify the SSID exactly to connect to the AP.

Security: this field displays the type of wireless security (if any) assigned to this profile: None, WEP, WPA, WPA2, WPA+WPA2

Encryption: this field selects the encryption type that is assigned to the profile: WEP, TKIP, CCMP, TKIP + CCMP.

Authentication: if any client authentication is required to allow the AP with this profile to establish a connection, it will be displayed here: PSK, RADIUS, PSK + RADIUS.

Action/Edit: The edit button will link to the Profile Configuration page, allowing you to change the properties shown in the table for this Profile.

The actions that can be taken on profiles are:

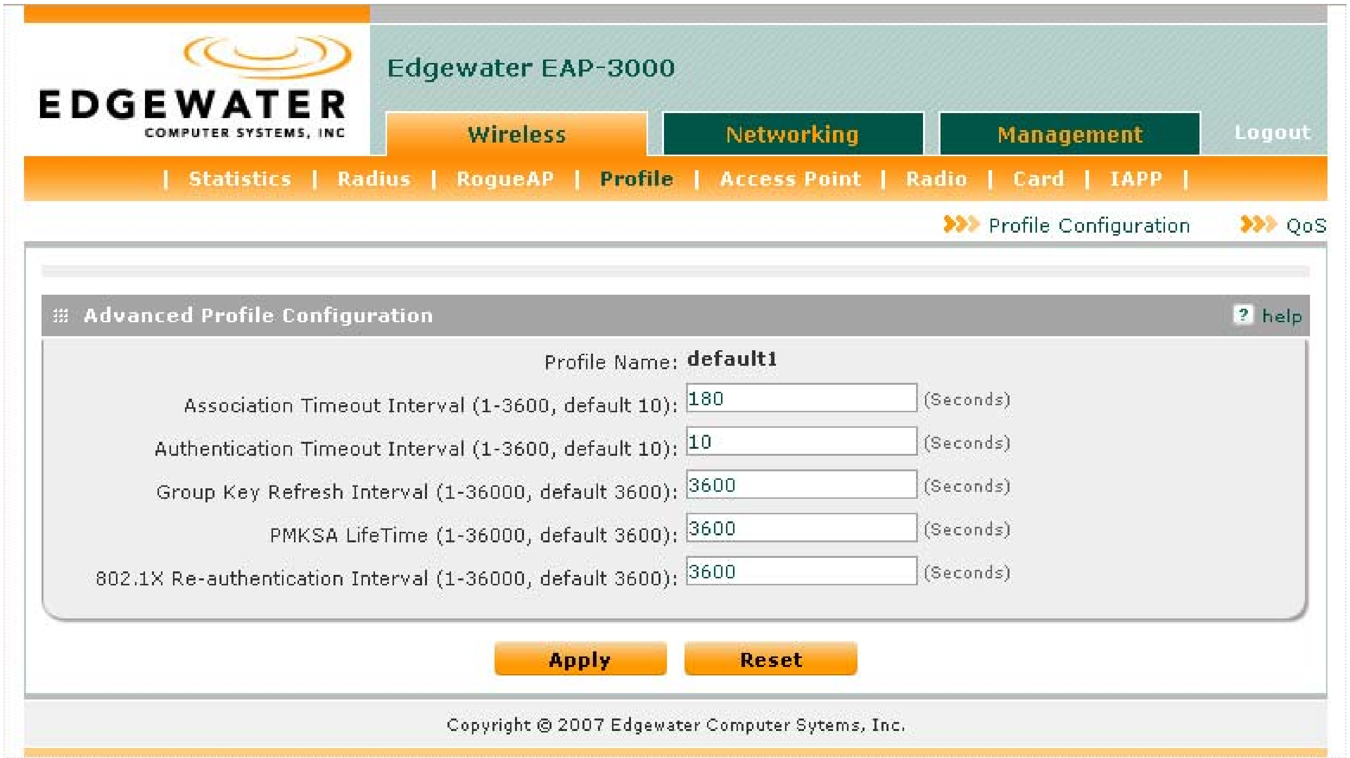
Select All: Select all the profiles in the table

Delete: Delete the selected profile or profiles

Add: create a new profile and add it to the list

3.6 Wireless -> Profiles -> Profile Configuration

The Profile Configuration page allows you to define the identifiers and wireless settings of a particular profile.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Wireless
Networking
Management
Logout
| Statistics | Radius | RogueAP | Profile | Access Point | Radio | Card | IAPP |
Profile Configuration
QoS
Advanced Profile Configuration
? help
Apply
Reset
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Profile Name: default1

Association Timeout Interval (1-3600, default 10): 180 (Seconds)

Authentication Timeout Interval (1-3600, default 10): 10 (Seconds)

Group Key Refresh Interval (1-36000, default 3600): 3600 (Seconds)

PMKSA LifeTime (1-36000, default 3600): 3600 (Seconds)

802.1X Re-authentication Interval (1-36000, default 3600): 3600 (Seconds)

Profile Name: enter a unique (alphanumeric) identifier of this wireless profile.

SSID: define the Service Set Identifier that clients use to connect to the AP that has this profile; it is referenced in the AP tables and statistics.

Broadcast SSID: enable this checkbox to broadcast the SSID. Disable this box to prevent auto-detection of the SSID and force clients wishing to connect to this AP to specify the SSID without seeing it as a detected network.

Security: Choose the type of security to be configured in this profile:

None: No security. Any wireless device can connect (subject to AP ACL policy).

WEP (Wired Equivalent Privacy): . Select this to use WEP encryption on the data packets.WEP is not considered to be secure and can be easily broken. Select this only if there are clients which can only support WEP security.

WPA (Wi-Fi Protected Access): WPA is part of wireless security standard (802.11i) standardized by the Wi-Fi Alliance and it was intended as an intermediate measure to take the place of WEP while 802.11i was prepared. It supports TKIP/CCMP encryption (default is TKIP) and PSK/RADIUS based authentication.

WPA2:WPA2 is implementation of security standard specified in final 802.11i. . It supports TKIP/CCMP encryption (default is CCMP) and PSK/RADIUS based authentication.

WPA and WPA2 This mode allows both WPA and WPA2 clients to connect simultaneously.

Encryption: Select the encryption method to use: TKIP, CCMP, or both.

Authentication: Type of authentication to use: RADIUS, PSK, or PSK + RADIUS.

WPA Password: Pre-Shared key for WPA/WPA2 PSK authentication. The clients also needs to be configured with the same password.

WEP Index and Keys

Selecting WEP in the Security box requires selecting the type of authentication and specifying the static WEP key to be used in the computers or devices that wish to access this secured wireless network.

Authentication: select between Open System or Shared Key schemes

Encryption: select the encryption type: 64 WEP, 128 WEP, or 152 WEP. The larger size keys provide stronger encryption, thus making the key more difficult to crack (i.e. 64 WEP has a 40 bit key which is less secure than the 128 WEP which has a 104 bit key).

WEP Passphrase: choose any alphanumeric phrase (longer than 8 characters for optimal security) and click **generate key** to generate 4 unique WEP keys. Select one of the four to use as the static key that devices must have in order to use the wireless network.

WEP Key 1-4: If WEP Passpharase is not specified, a key can be entered directly in one of the WEP Key boxes. The length of key should be 5 ASCII characters (or 10 hex characters) for 64-bit WEP, 13 ASCII characters (or 26 hex characters) for 128-bit WEP, and 16 ASCII characters (or 32 hex characters).

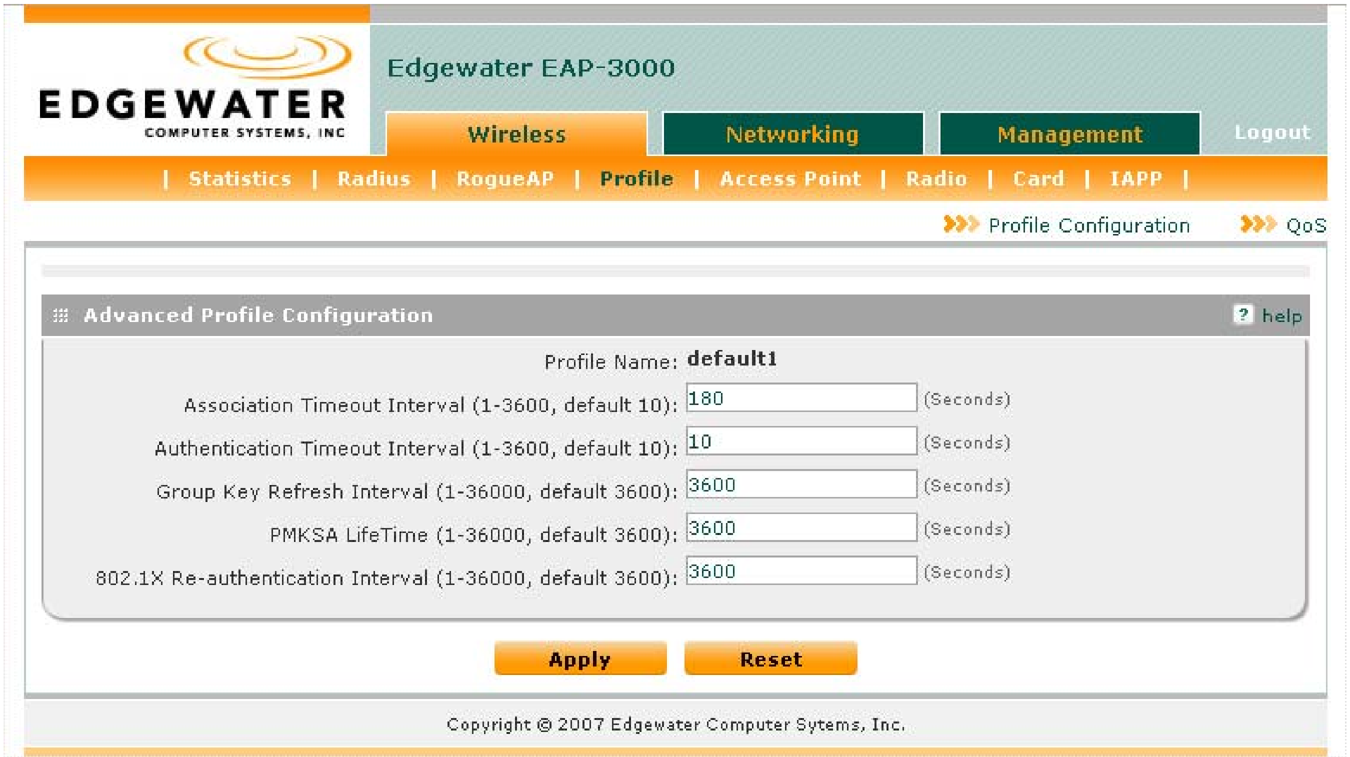
WEP Key Index: Based on which WEP key box is used, WEP key index is derived. Different clients can have different numbering scheme for index. For clients which have indexing starting with 0, WEP Key 1 to WEP Key 4 corresponds to index 0 to 3. Clients which have indexing starting with 1, WEP Key 1 to WEP Key 4 corresponds to index 1 to 4.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

3.7 Wireless -> Profiles -> Profile Configuration -> Advanced Profile Configuration

This page allows you to edit configuration parameters from their default settings.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Wireless
Networking
Management
Logout
| Statistics | Radius | RogueAP | Profile | Access Point | Radio | Card | IAPP |
Profile Configuration
QoS
Advanced Profile Configuration
help
Apply
Reset
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Profile Name: **default1**

Association Timeout Interval (1-3600, default 10): 180 (Seconds)

Authentication Timeout Interval (1-3600, default 10): 10 (Seconds)

Group Key Refresh Interval (1-36000, default 3600): 3600 (Seconds)

PMKSA LifeTime (1-36000, default 3600): 3600 (Seconds)

802.1X Re-authentication Interval (1-36000, default 3600): 3600 (Seconds)

Association Timeout Interval (Seconds): This specifies the timeout interval between authenticated and associated state of client. If client is not associated in this interval after the authentication, it is disconnected.

Authentication Timeout Interval (Seconds): This is the timeout interval for RADIUS (802.1X) authentication. If RADIUS authentication is not completed within this time after client is associated, it is disconnected.

Group Key Refresh Interval (Seconds): This specifies the timeout interval after which group keys are generated (only used if profile is configured with WPA or WPA2 security).

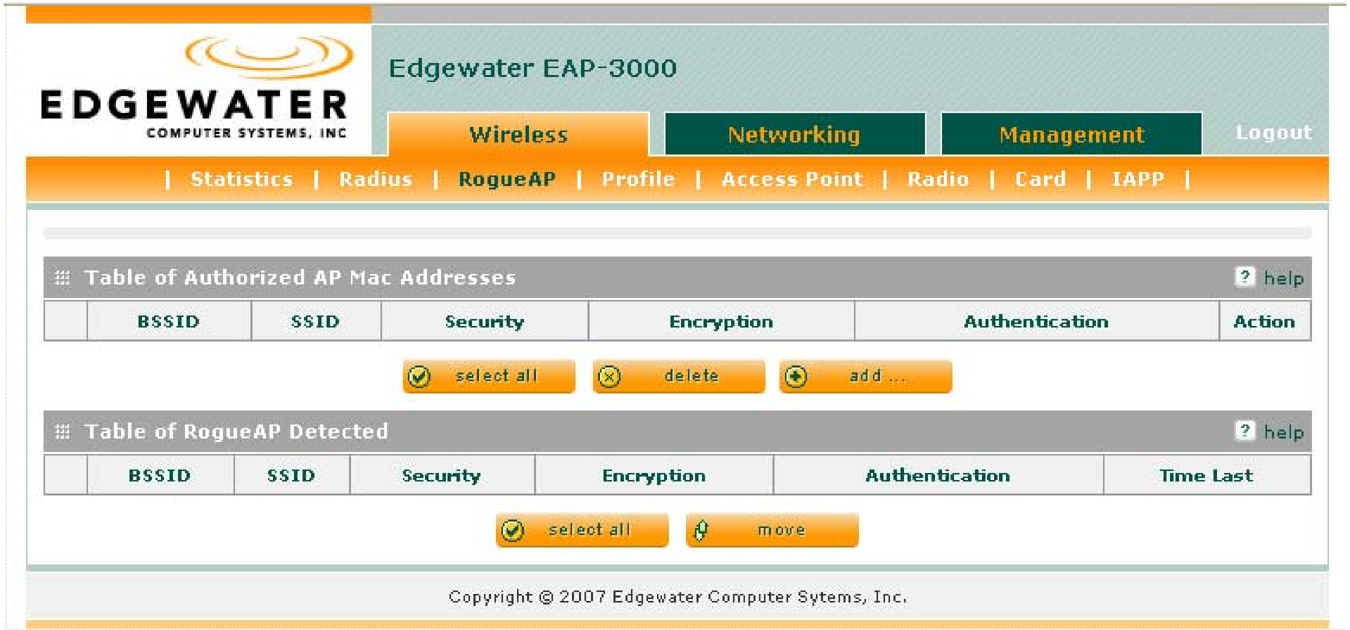
PMKSA Life Time (Seconds): WPA2 security standard has a option called PMKSA caching which means that the masker keys derived from successful RADIUS authentication are cached for some time to avoid long RADIUS authentication every time a client connects. This timeout interval specifies for how long this PMKSA is stored in the AP A client reconnecting within this interval (after successful RADIUS authentication) can skip the RADIUS authentication.

802.1X Re-authentication Interval: The timeout interval after which AP should re-authenticate with RADIUS server.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

3.8 Wireless -> RogueAP



Edgewater EAP-3000

Table of Authorized AP Mac Addresses

	BSSID	SSID	Security	Encryption	Authentication	Action

Table of RogueAP Detected

	BSSID	SSID	Security	Encryption	Authentication	Time Last

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This page summarizes the authorized and rogue APs configured for the system. A rogue AP is the AP that is not authorized to be running in the wireless area covered by this AP(s).

An Administer can specify the list of authorized Access Points in the area in the “Authorized AP” table. Any AP detected which is not in this list is recorded in RogueAP table.

BSSID: The BSSID of the AP

SSID: The SSID serviced by AP

Security: Security used by AP: None, WEP, WPA, WPA2, WPA+WPA2

Encryption: Encryption used by AP: WEP, TKIP, CCMP, TKIP + CCMP.

Authentication: Type of WPA/WPA2 authentication used by AP: PSK, RADIUS, PSK+RADIUS

Action/Edit: The edit button will link to the Authorized AP Configuration page, allowing you to change the properties shown in the table for this AP.

The actions that can be taken on the Table of Authorized APs are:

Select All: Select all the APs in the table

Delete: Delete the selected AP or APs

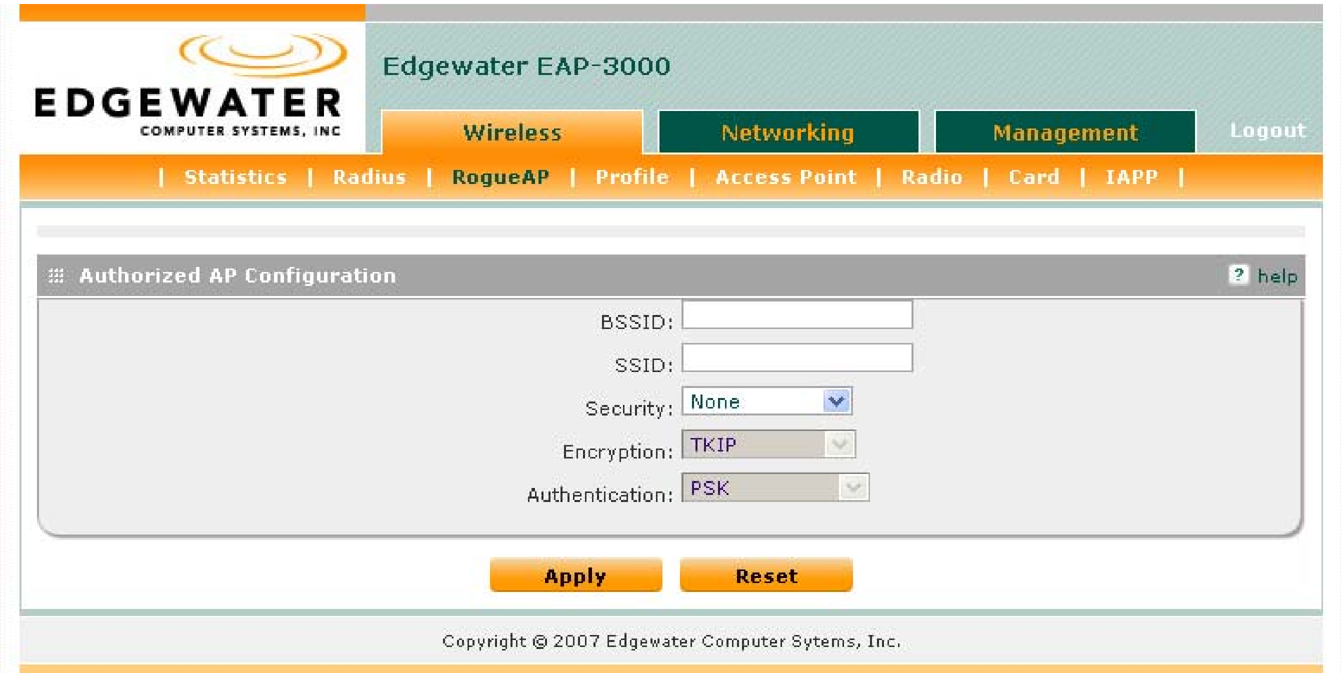
Add: add a new authorized AP to the list

Time Last: This is the time in when a rogue AP was detected.

Move: Move an AP from “RogueAP” table to “Authorized”

3.9 Wireless -> RogueAP -> Authorized AP Configuration

Use this page to add an AP to the Table of Authorized APs.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Wireless
Networking
Management
Logout
| Statistics | Radius | RogueAP | Profile | Access Point | Radio | Card | IAPP |
help
Apply
Reset
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Authorized AP Configuration

BSSID:

SSID:

Security: None

Encryption: TKIP

Authentication: PSK

BSSID: The BSSID of the AP

SSID: The SSID serviced by AP

Security: Security used by AP: None, WEP, WPA, WPA2, WPA+WPA2

Encryption: Encryption used by AP: WEP,TKIP, CCMP, TKIP + CCMP.

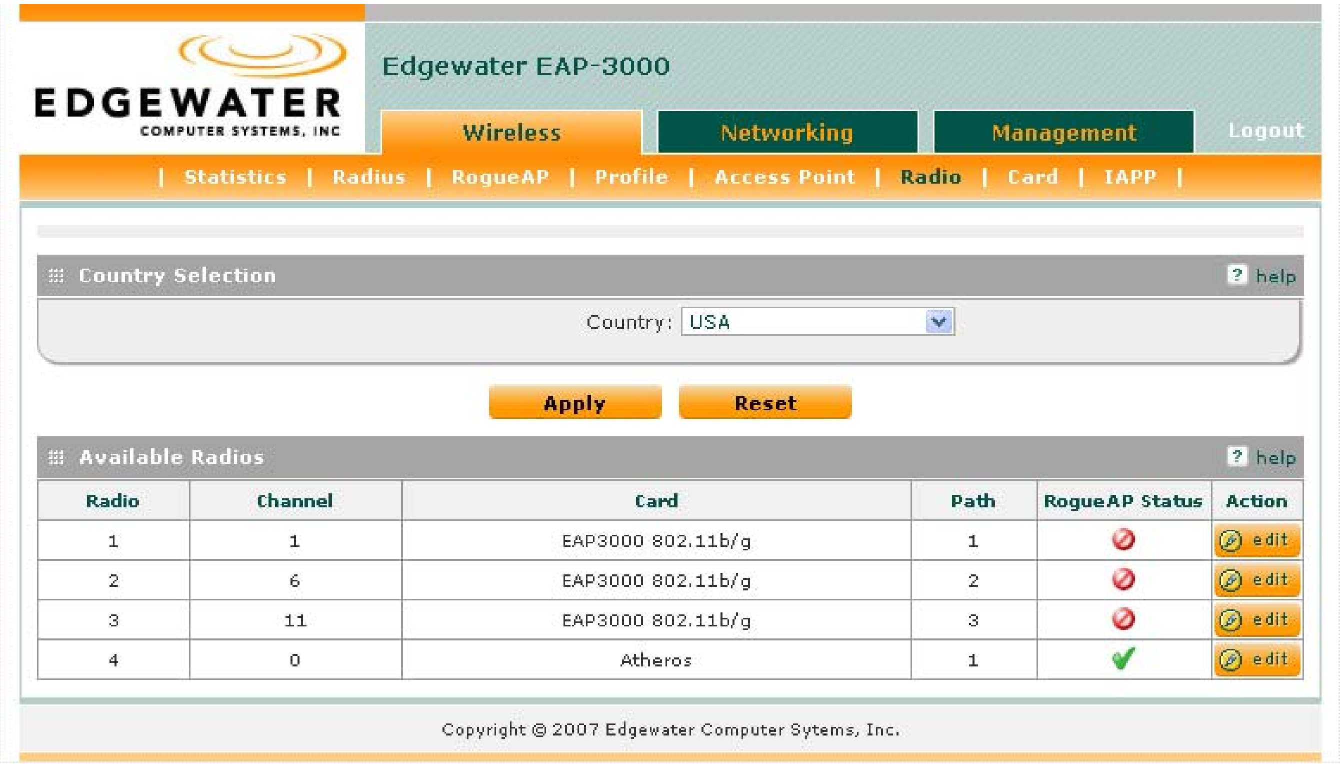
Authentication: Type of WPA/WPA2 authentication used by AP: PSK, RADIUS, PSK+RADIUS

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

3.10 Wireless -> Radio

This device supports multiple radios over 1 or 2 WLAN cards. The table here shows the list of available radios that an AP may use.



Country: USA

Radio	Channel	Card	Path	RogueAP Status	Action
1	1	EAP3000 802.11b/g	1	⊘	edit
2	6	EAP3000 802.11b/g	2	⊘	edit
3	11	EAP3000 802.11b/g	3	⊘	edit
4	0	Atheros	1	✓	edit

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Radio: Depending on the WLAN card(s) used in this device, there are a maximum of 3 radios supported per card (EAP3000 802.11 b/g or 802.11a card) and maximum of 1 radio supported by Atheros 802.11a card; these are numerated 1 to 6 for the maximum of 2 WLAN cards.

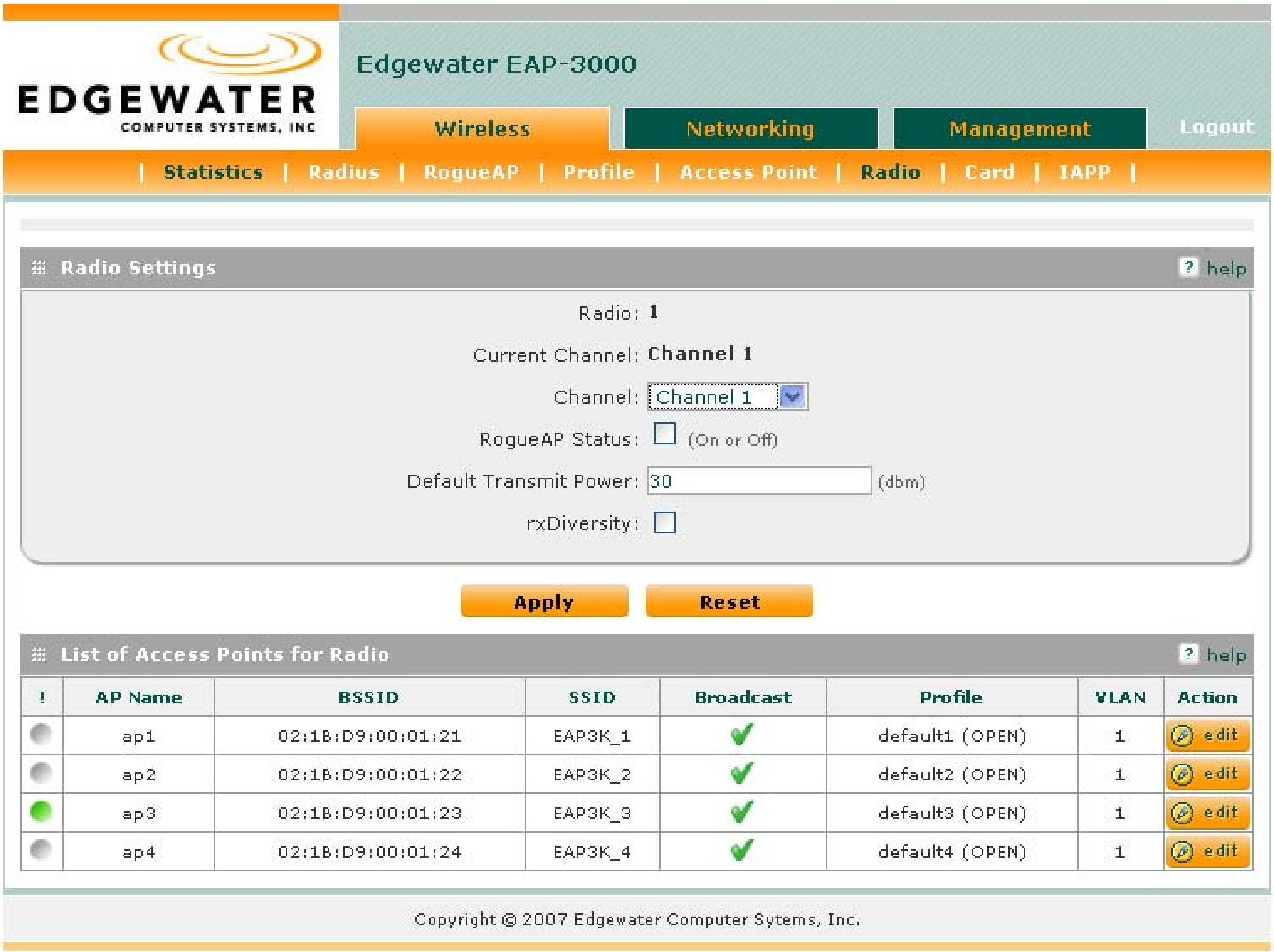
Card: This field indicates which of the 2 cards the radio is using

Path: There are 3 possible paths on an EAP3000 card. Each radio is mapped to a unique path.

RogueAP Status: The green tick mark indicates that RogueAP detection is enabled on this radio; the red ‘cancel’ icon indicates the RogueAP detection is disabled on this radio

Action/Edit: The edit button will link to the associated radio settings page.

3.11 Wireless -> Radio -> Radio Settings


Edgewater EAP-3000
Wireless
Networking
Management
Logout
| Statistics | Radius | RogueAP | Profile | Access Point | Radio | Card | IAPP |
Radio Settings
? help
Apply
Reset
List of Access Points for Radio
? help
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Radio: 1

Current Channel: Channel 1

Channel: Channel 1

RogueAP Status: □ (On or Off)

Default Transmit Power: 30 (dbm)

rxDiversity: □

!	AP Name	BSSID	SSID	Broadcast	Profile	VLAN	Action
●	ap1	02:1B:D9:00:01:21	EAP3K_1	✓	default1 (OPEN)	1	edit
●	ap2	02:1B:D9:00:01:22	EAP3K_2	✓	default2 (OPEN)	1	edit
●	ap3	02:1B:D9:00:01:23	EAP3K_3	✓	default3 (OPEN)	1	edit
●	ap4	02:1B:D9:00:01:24	EAP3K_4	✓	default4 (OPEN)	1	edit

Current Channel: this displays the channel currently used by the radio.

Channel: Select a channel from the list of channels or choose “auto” to let system determine the best channel to use.

RogueAP status: select this check box to enable RogueAP detection on this radio.

Default Transmit Power: enter a value in dBm as the default transmitted power level for all APs that use this radio.

rxDiversity: enable receive diversity (use multiple antennas to receive packets)

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

List of Access Points for Radio

This table shows all the AP's that are configured for a particular radio. The actions that can be taken on the List of Access Points for Radio are:

Select All: Select all the APs that are on this radio

Delete: Delete the selected AP or APs from this radio

Wireless -> Card

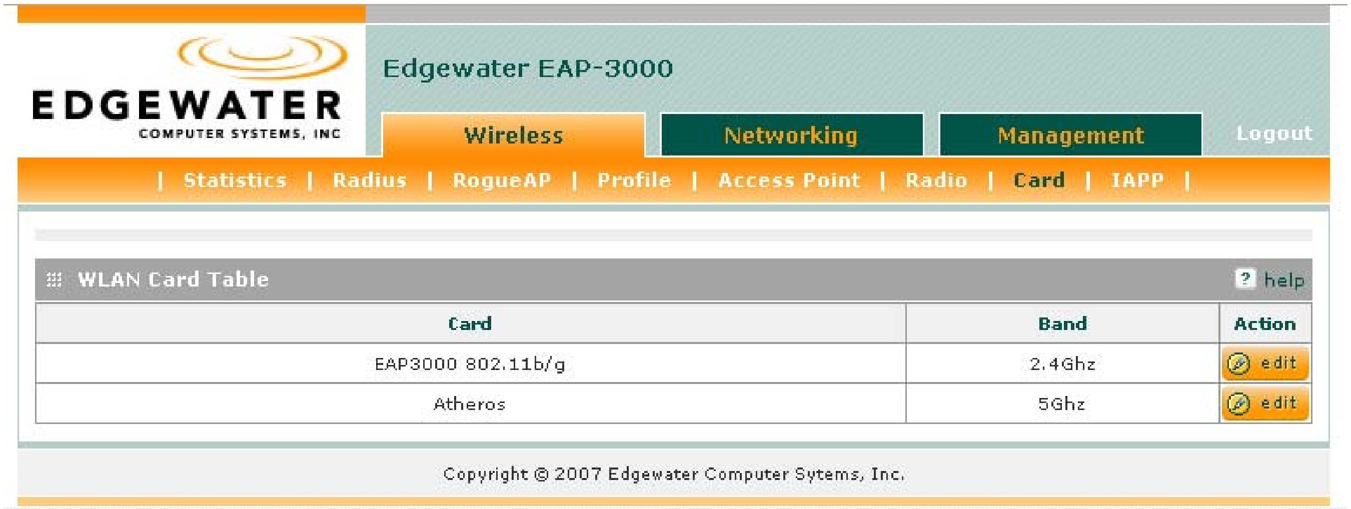
This page lists the number and type of wireless cards present in the system

Card: Name of the card.

Band: The frequency band used by this card

Action/Edit: The edit button will link to the associated card's settings page.

3.12 Wireless -> Card



Card	Band	Action
EAP3000 802.11b/g	2.4Ghz	edit
Atheros	5Ghz	edit

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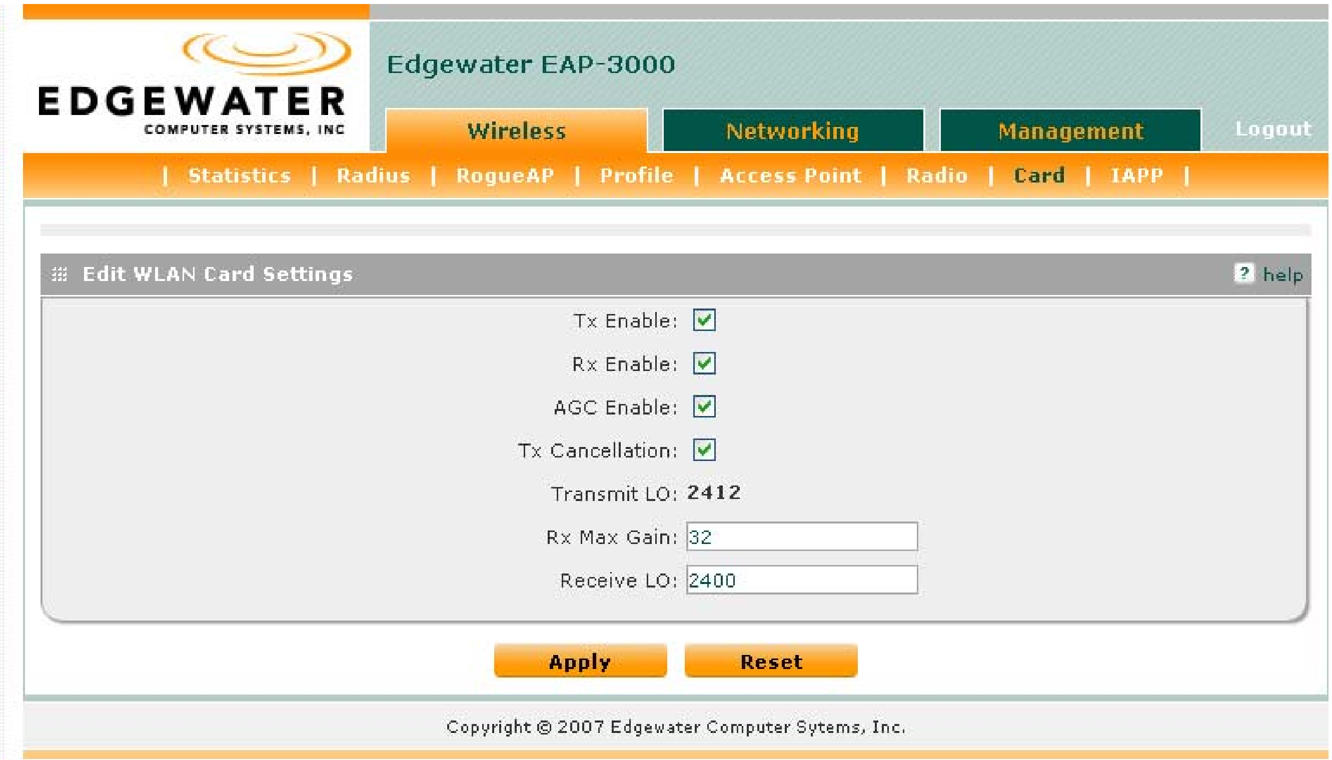
3.13 Wireless -> Card -> Edit WLAN Card Settings



Edit WLAN Card Settings

Tx Enable: ☑

Rx Enable: ☑

AGC Enable: ☑

Tx Cancellation: ☑

Transmit LO: 2412

Rx Max Gain: 32

Receive LO: 2400

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Tx Enable: de-select this checkbox to disable transmit

Rx Enable: de-select this checkbox to disable receive

AGC Enable: select to allow this card to adjust its gain settings depending on the connection with the client (automatic gain control)

Tx Cancellation: select to enable Crosstalk

Rx Max Gain: this is the maximum gain that can be applied to the received data

Transmit LO: *specific to chip firmware – ECSI input required*

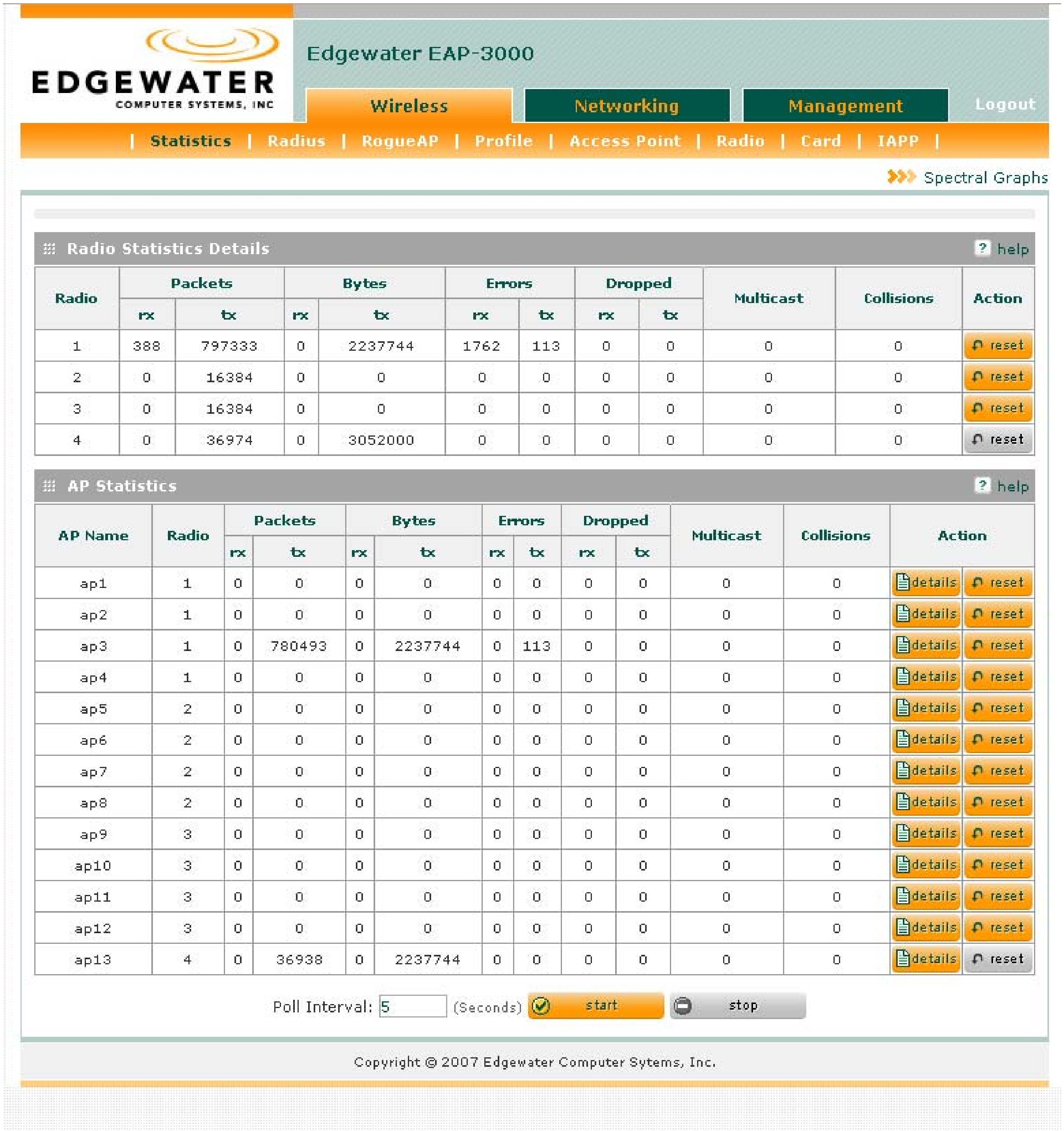
Receive LO: *specific to chip firmware – ECSI input required*

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

3.14 Wireless -> Statistics

This page shows a cumulative total of relevant wireless statistics for the APs and radios; the counter is reset when the device is rebooted.


EDGEWATER
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Edgewater EAP-3000
Wireless
Networking
Management
Logout
| Statistics | Radius | RogueAP | Profile | Access Point | Radio | Card | IAPP |
Spectral Graphs
help
help
start
stop
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Radio Statistics Details

Radio	Packets		Bytes		Errors		Dropped		Multicast	Collisions	Action
	rx	tx	rx	tx	rx	tx	rx	tx			
1	388	797333	0	2237744	1762	113	0	0	0	0	reset
2	0	16384	0	0	0	0	0	0	0	0	reset
3	0	16384	0	0	0	0	0	0	0	0	reset
4	0	36974	0	3052000	0	0	0	0	0	0	reset

AP Statistics

AP Name	Radio	Packets		Bytes		Errors		Dropped		Multicast	Collisions	Action
		rx	tx	rx	tx	rx	tx	rx	tx			
ap1	1	0	0	0	0	0	0	0	0	0	0	details reset
ap2	1	0	0	0	0	0	0	0	0	0	0	details reset
ap3	1	0	780493	0	2237744	0	113	0	0	0	0	details reset
ap4	1	0	0	0	0	0	0	0	0	0	0	details reset
ap5	2	0	0	0	0	0	0	0	0	0	0	details reset
ap6	2	0	0	0	0	0	0	0	0	0	0	details reset
ap7	2	0	0	0	0	0	0	0	0	0	0	details reset
ap8	2	0	0	0	0	0	0	0	0	0	0	details reset
ap9	3	0	0	0	0	0	0	0	0	0	0	details reset
ap10	3	0	0	0	0	0	0	0	0	0	0	details reset
ap11	3	0	0	0	0	0	0	0	0	0	0	details reset
ap12	3	0	0	0	0	0	0	0	0	0	0	details reset
ap13	4	0	36938	0	2237744	0	0	0	0	0	0	details reset

Poll Interval: 5 (Seconds)

Radio Statistics Details

This table displays transmit/receive data for each radio.

Packets: the number of transmitted/received wireless packets
Bytes: the number of transmitted/received bytes of information

Errors: the number of transmitted/received packet errors reported to the radio

Dropped: the number of transmitted/received packet drops between the radio and client

Multicast: the number of multicast packets sent over this radio

Collisions: the number of packet collisions reported to the radio

AP Statistics Details

This table displays transmit/receive data for each AP; An AP can have multiple entries if it is running on multiple radios.

Packets: the number of transmitted/received wireless packets
Bytes: the number of transmitted/received bytes of information

Errors: the number of transmitted/received packet errors reported to the AP

Dropped: the number of transmitted/received packet dropped by the AP

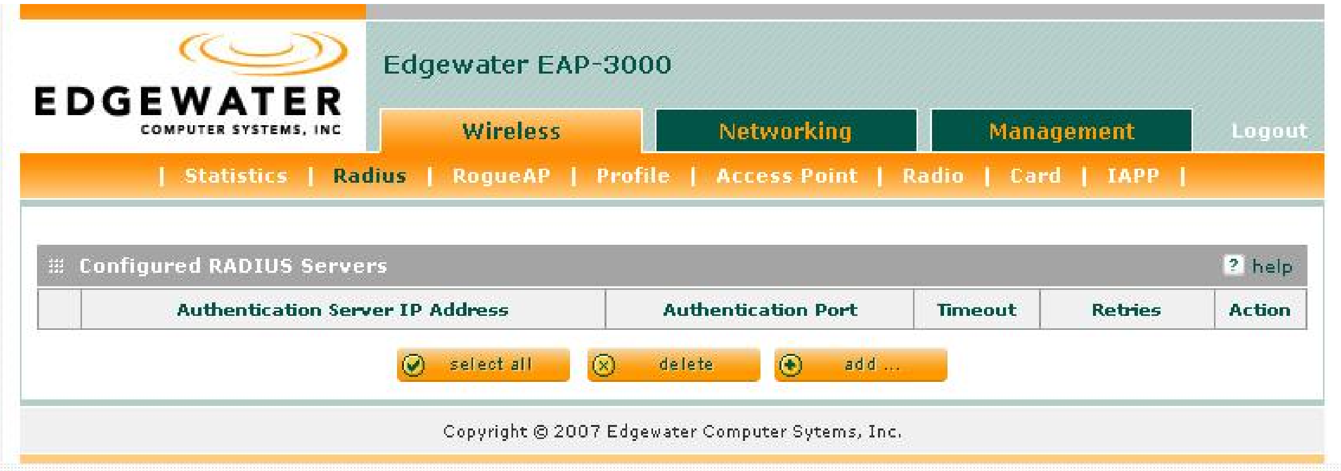
Multicast: the number of multicast packets sent over this AP

Collisions: the number of packet collisions reported to the AP

Action / Details: this button will open a popup showing specific receive/transmit and cryptographic parameters. These stats are cumulative and reset when the device is rebooted.

3.15 Wireless -> Radius

A RADIUS server maintains a database of user accounts used in larger environments. If a RADIUS server already exists, it can be used for authenticating users that want to connect to the wireless network provided by this device. When multiple RADIUS servers are configured they are accessed in the same order as in the table. If first RADIUS server is not accessible, then system tries to contact the next RADIUS server.



Configured RADIUS Servers

	Authentication Server IP Address	Authentication Port	Timeout	Retries	Action

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Configured Radius Servers

This table displays the list of configured RADIUS servers.

Authentication Server IP Address: IP address of RADIUS authentication server
Authentication Port: RADIUS authentication server port to send the RADIUS messages.

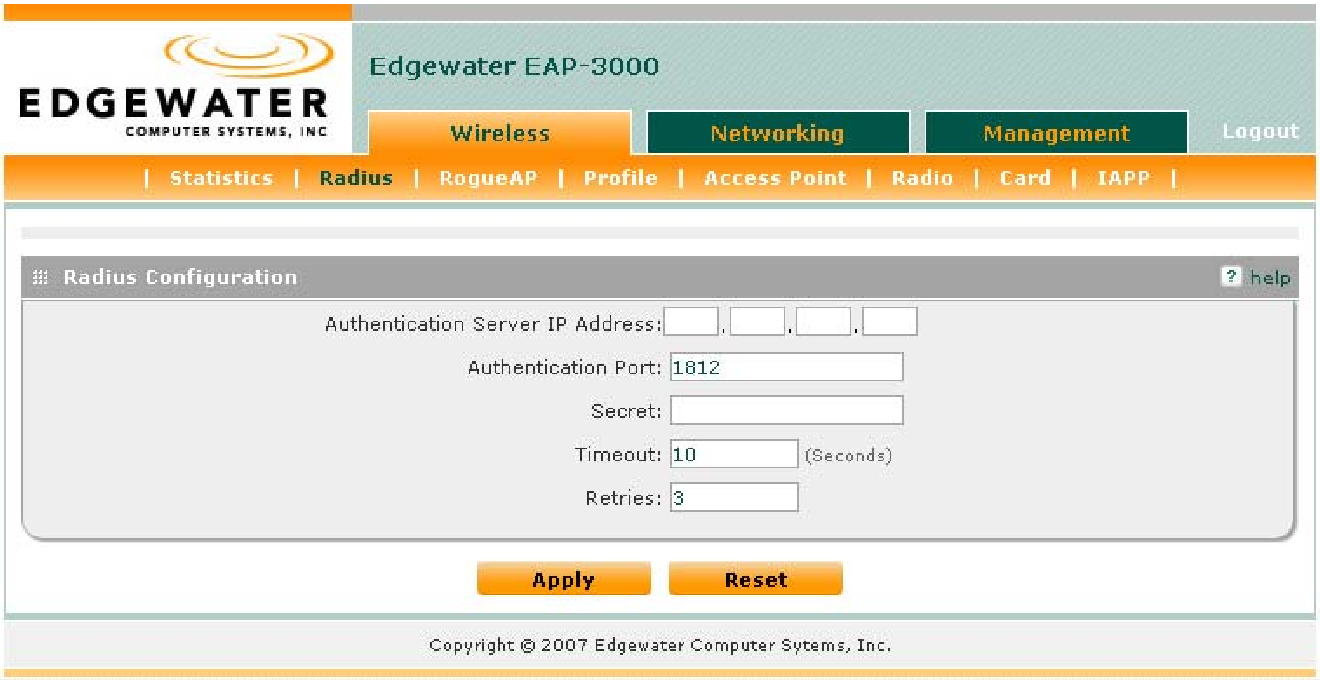
Timeout: The time (in seconds) the device waits for a response from the RADIUS server

Retries: The number of tries the router will make to the RADIUS server before giving up.

Action/Edit: The edit button will link to the associated RADIUS servers' configuration page.

3.16 Wireless -> Radius -> Radius Configuration

This page configures the RADIUS server to be used for authentication.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Networking
Management
Logout
| Statistics | Radius | RogueAP | Profile | Access Point | Radio | Card | IAPP |
Radius Configuration
? help
Apply
Reset
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Authentication Server IP Address: . . .
Authentication Port: 1812
Secret:
Timeout: 10 (Seconds)
Retries: 3

Authentication Server IP Address: IP address of RADIUS authentication server
Authentication Port: RADIUS authentication server port to send the RADIUS messages.

Time out period: Set the amount of time in seconds, the router should wait for a response from the RADIUS server.

Maximum Retry Count: This determines the number of tries the router will make to the RADIUS server before giving up.

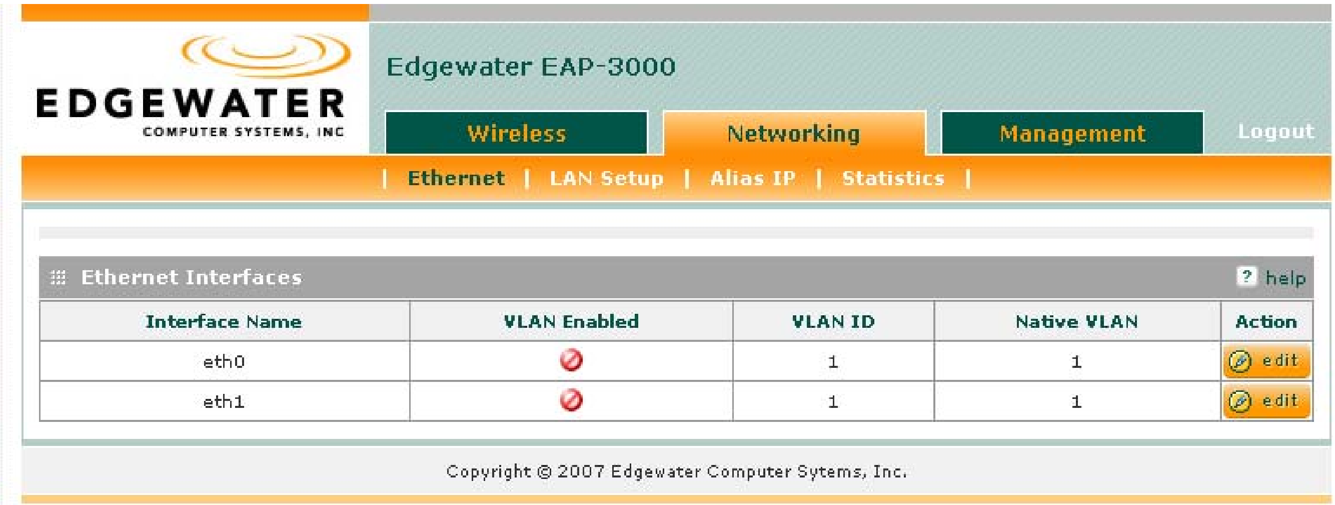
Click **Apply** to save the settings.

Click **Reset** to revert to the previous settings.

4 Networking

4.1 Networking -> Ethernet

This device has two Ethernet interfaces. One Ethernet interface and all the wireless interfaces are bridged under a virtual interface called “bdg”. This allows wireless clients to access the local area network (LAN) via the Ethernet port. The second Ethernet port is not bridged and used to access and manage the device.



Ethernet Interfaces

Interface Name	VLAN Enabled	VLAN ID	Native VLAN	Action
eth0	⊘	1	1	edit
eth1	⊘	1	1	edit

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IP Address: the static IP address of this device

Subnet Mask: IPv4 Subnet Mask

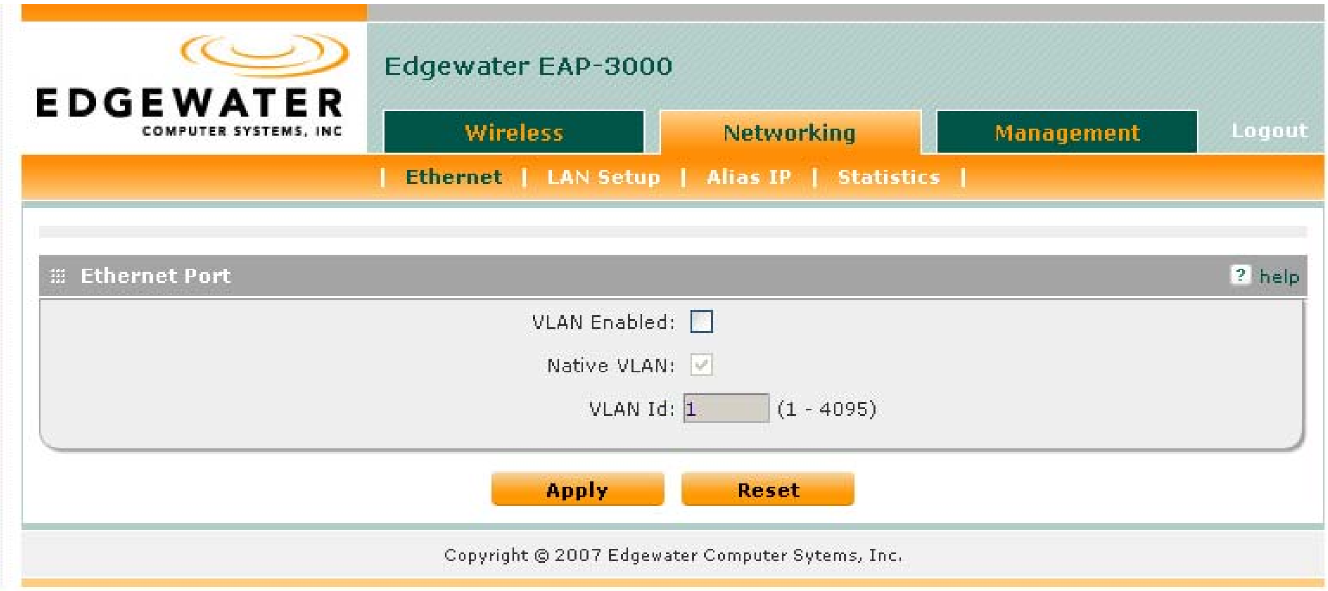
Gateway IP Address: IP address of the gateway. This is usually provided by the ISP or your network administrator.

Domain name servers (DNS): DNS server IP address to covert the internet name (such as www.google.com) to an IP address.

Action/Edit: The edit button will link to the associated Ethernet port setup page

4.2 Networking-> Ethernet -> Ethernet Port (Setup)

This page allows you to configure static IP addresses to manage this AP device.



Ethernet Port

VLAN Enabled: □

Native VLAN: ☑

VLAN Id: 1 (1 - 4095)

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IP Address: the static IP address of this device

Subnet Mask: IPv4 Subnet Mask

Gateway IP Address: IP address of the gateway. This is usually provided by the ISP or your network administrator.

Domain name servers (DNS): DNS server IP address to covert the internet name (such as www.google.com) to an IP address.

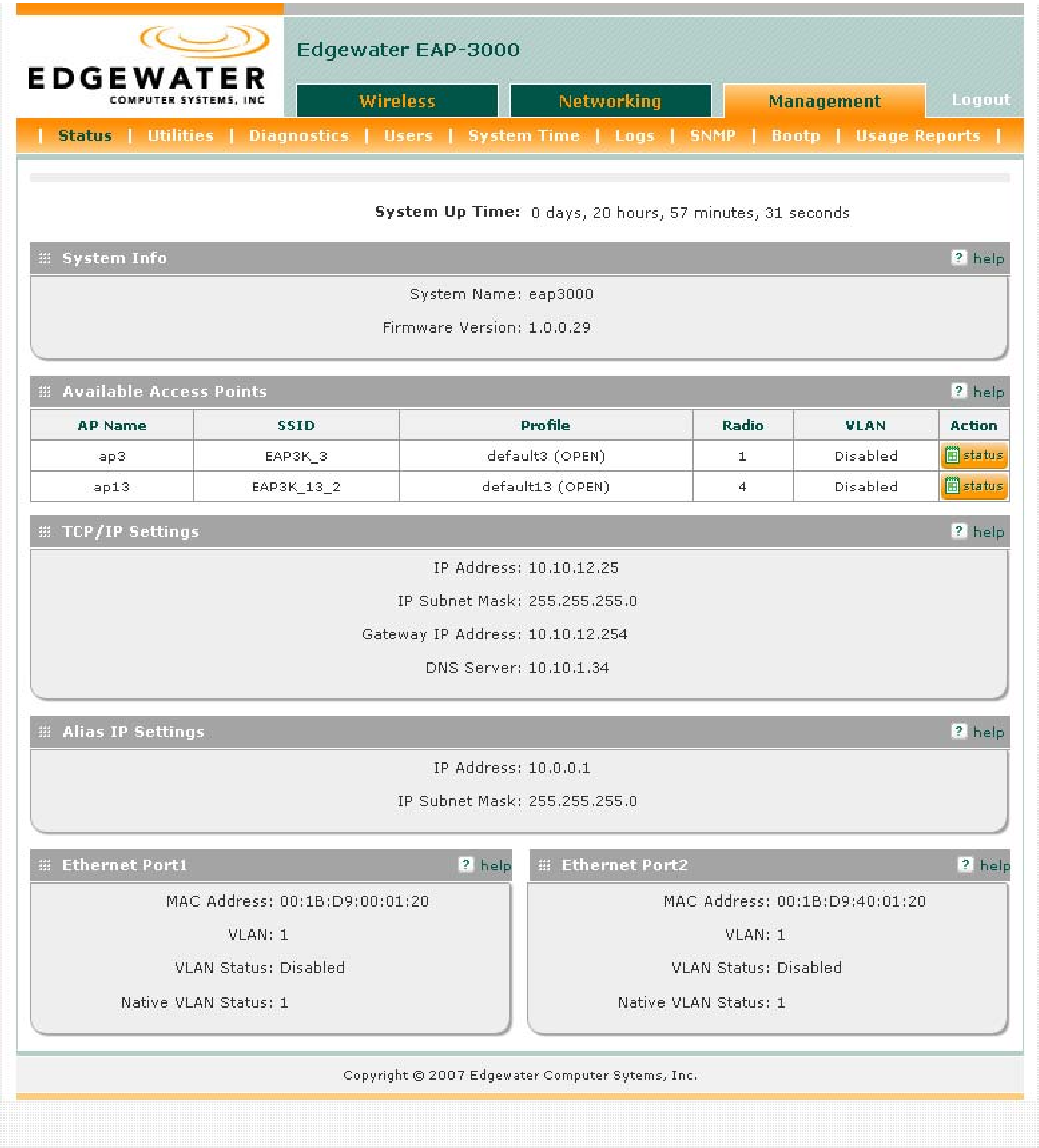
Click **Apply** to save the settings.

Click **Reset** to revert to the previous settings.

Management

5 Management -> Status

This page displays current status of the device, include the configured AP's, as well as other system information.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Edgewater EAP-3000
Wireless
Networking
Management
Logout
| Status | Utilities | Diagnostics | Users | System Time | Logs | SNMP | Bootp | Usage Reports |
help

System Up Time: 0 days, 20 hours, 57 minutes, 31 seconds

System Info

System Name: eap3000

Firmware Version: 1.0.0.29

Available Access Points

AP Name	SSID	Profile	Radio	VLAN	Action
ap3	EAP3K_3	default3 (OPEN)	1	Disabled	status
ap13	EAP3K_13_2	default13 (OPEN)	4	Disabled	status

TCP/IP Settings

IP Address: 10.10.12.25

IP Subnet Mask: 255.255.255.0

Gateway IP Address: 10.10.12.254

DNS Server: 10.10.1.34

Alias IP Settings

IP Address: 10.0.0.1

IP Subnet Mask: 255.255.255.0

Ethernet Port1

MAC Address: 00:1B:D9:00:01:20

VLAN: 1

VLAN Status: Disabled

Native VLAN Status: 1

Ethernet Port2

MAC Address: 00:1B:D9:40:01:20

VLAN: 1

VLAN Status: Disabled

Native VLAN Status: 1

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System Up Time: this is the time that the device has been online since its last reboot.

Available Access Points

The Available Access Points table displays the list of active Access Points for this device (from the AP table in the Access Points menu). From this summary list, status and parameters of each AP are available for display.

AP Name: This is AP identifier which uniquely identifies AP in the list of configured APs.

SSID: the name or SSID (service set identifier) is the name of the wireless network serviced by this AP; it is configured on the Profile page and later associated with AP by selecting it from the profile drop down box. Note that a given wireless profile can be common to multiple APs, and so the SSID is not unique to an AP. In order for the computers or devices to communicate via this wireless network serviced by this AP, all devices must select the same SSID from the list of wireless networks in the area.

Profile: This field has a brief description of the security, encryption and authentication combination assigned to the AP. A Profile is not necessarily unique to an AP, rather this grouping of wireless settings can be used on more than one AP at the same time.

Radio: The physical radio(s) on which this AP is running on. An AP can run on multiple radios at the same time for load-balancing and better throughput.

VLAN: The AP can be part of a logical network defined by the VLAN id; this allows devices connected to the VLAN through this AP to exchange data with one another as in a LAN.

Action/Status: The status button will link to a statistics page for this AP, displaying traffic information for the AP and an overview of the connected clients.

System Info

This section displays some basic the information about the system, including the System Name and the Firmware Versions.

System Name: Displays the Product Name (Ex: EAP-3000).

Firmware Version: This is the version number of the firmware currently used by this device. By default, this AP device will boot from this version. This will change when the device firmware is upgraded.

Ethernet Port 1

This section displays information about Ethernet port 1.

MAC Address: MAC address for this port.

IP address: IP address configured on this port.

IP Subnet mask: subnet mask configured on this port.

Gateway IP address: IP address of the gateway used by this port.

DNS Server: this indicates the DNS IP address if used.

VLAN: This is the ID of the VLAN group to which this port belongs, if any.

Ethernet Port 2

This section displays information about Ethernet port 2.

MAC Address: The LAN side configured MAC address for this port.

IP address: The device's LAN side IP address for this port.

IP Subnet mask: The device's LAN side subnet mask for this port.

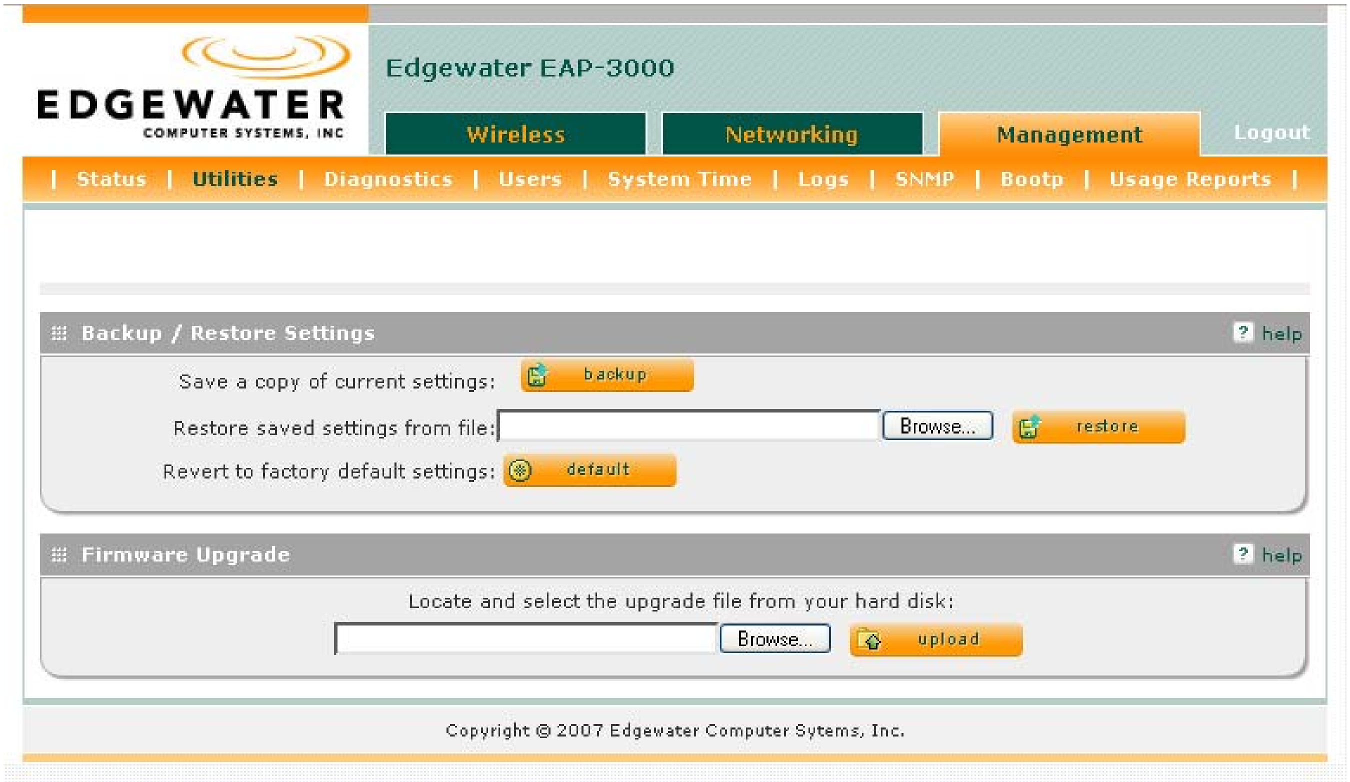
Gateway IP address: IP address of the ISP's gateway used by this port.

DNS server: IP address to covert the internet name (such as www.google.com) to an IP address.

VLAN: This is the ID of the VLAN group to which this port belongs, if any.

5.1 Management -> Utilities

This page allows you to save a backup copy of the device's settings and restore them at a later time. You can then erase the settings completely and restore the factory defaults.



Save a copy of current settings:

Restore saved settings from file:

Revert to factory default settings:

Locate and select the upgrade file from your hard disk:

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The Upgrade section is used to upgrade the device to a different firmware version.

IMPORTANT!

Restoring a saved configuration or resetting to defaults will remove your current settings. Configured APs, Profiles, RogueAP settings and all other settings will be lost. Please backup your settings. Settings cannot be retrieved unless they have been backed up.

When the settings restore operation or the firmware upgrade is in progress:

1. Do NOT close the browser window.
2. Do NOT go online.
3. Do NOT turn off or power-cycle the device.
4. Do NOT shutdown the computer.

Backup/Restore Settings

To take a backup of the current settings:

Click **Back Up**.

You may be prompted to save a file with the extension "**.cfg**". Select a safe location on your computer and save the file.

The settings will be saved in this file.

To restore settings from a backup file:

Click **Browse**.

On your computer, locate and select the backup file you saved previously.

Click **Restore**.

A progress bar indicating the status of the restore operation will appear. The device will automatically restart after the Restore Settings operation has completed.

To revert to the factory default settings, click Default.

The device will restart automatically after resetting to the factory default settings. The factory default settings are as follows:

User Name: admin

Password: password

LAN Port 1 IP address: 192.168.1.1

Firmware Upgrade

New versions of firmware can be loaded onto the device in this section.

IMPORTANT!

A firmware upgrade may sometimes require a complete reconfiguration of the device. See the Release Notes which are included with the downloaded firmware file or go to the download page of the website for more information. Read the Release Notes for any information related to the upgrade before performing the upgrade operation.

To upgrade the router software:

Click Browse.

Select the uncompressed firmware image file stored on your computer.

Click Upgrade. A progress bar will appear displaying the status of the upload.

The device will take several minutes to complete the upgrade.

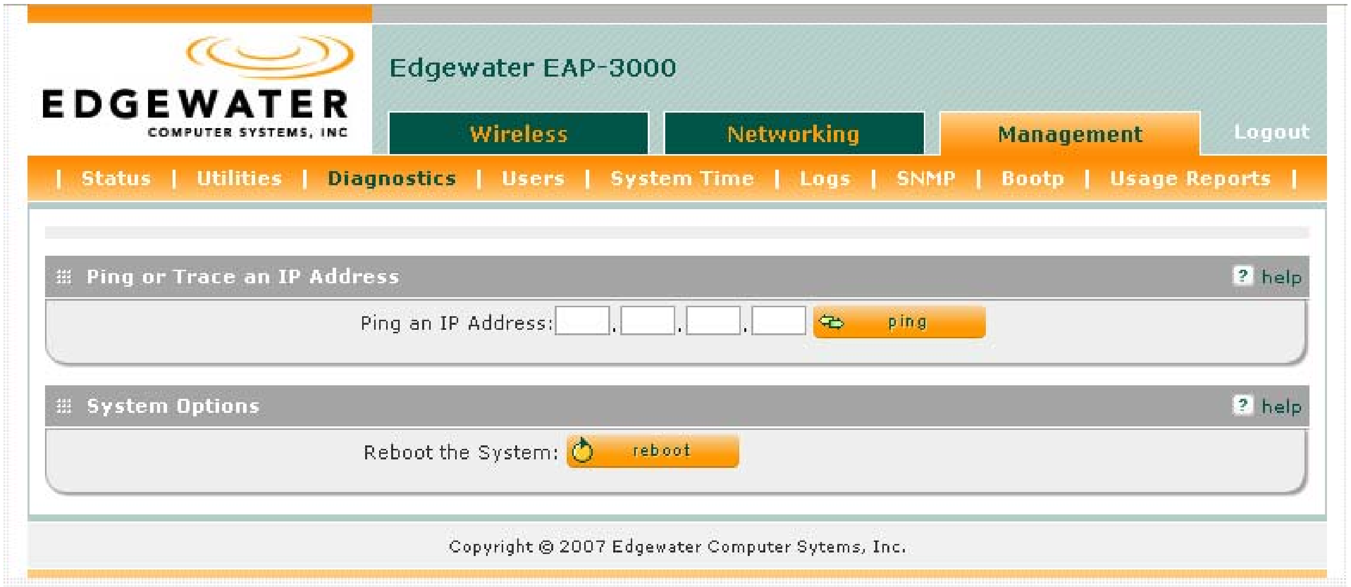
Once the image upgrade is complete, the device will automatically restart.

After a successful upgrade, the Login page will display. After logging in, go to the Status page under the Management menu, to verify the firmware upgrade. The Firmware Version should be the same as the version selected for the upgrade.

If the upgrade was unsuccessful, see "Trouble Shooting" in Reference Manual on the Resource CD.

5.2 Management -> Diagnostics

The diagnostics page is used to perform various diagnostics such as ping connectivity tests, system reboot, and others.


EDGEWATER
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Wireless
Networking
Management
Logout
| Status | Utilities | Diagnostics | Users | System Time | Logs | SNMP | Bootp | Usage Reports |
Ping or Trace an IP Address
help
Ping an IP Address: . . .
ping
System Options
help
Reboot the System:
reboot
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Ping an IP Address

Ping: This utility can be used to test connectivity between this device and another device on the network connected to this system. Type in an IP address and click ping to send an ICMP echo request packet to the destination. If the destination IP address is active, you can see a response similar to “64 bytes from IP_Address: icmp……”. A “response timed out” message indicates that the destination is either not active or is blocking ping requests.

The results of the ping operation will be loaded in the current page. To return to the **Diagnostics** page, click on the back button of your browser.

System Options

Reboot the System: Click Reboot to restart the device from the web interface.

Note: All active connections to the AP and the connections going through the AP to the LAN will be disconnected while the restart is in progress.

Management -> Users

The Users page is used to change the system passwords for Administrator and Guest users.

Note: This password is used to login to the device and is NOT the same as the account password provided by your ISP.

User Selection

To change administrator credentials, click **Edit Admin Settings**. To change guest user settings, click **Edit Guest Settings**.

Admin Settings

This section allows you to change the settings for the account with administrator privileges. The following fields must be entered:

Old Password: Type in the current password.

New Password: Type in a new password

Retype New Password: Confirm the new password by re-entering it.

Guest Settings

This section allows you to change the settings of the guest user. The following fields must be entered:

Old Password: Type in the current password.

New Password: Type the new password

Retype New Password: Confirm the new password by retyping it again.

Click **Apply** to save your changes.

Click **Reset** to revert back to the previous settings.

Idle Logout Time

For security reasons, the device will log you out of the web management interface after a period of inactivity. The factory default timeout is 5 minutes. To change the timeout period, type in a new value in the field labeled **Administrator login times out after idle for** field.

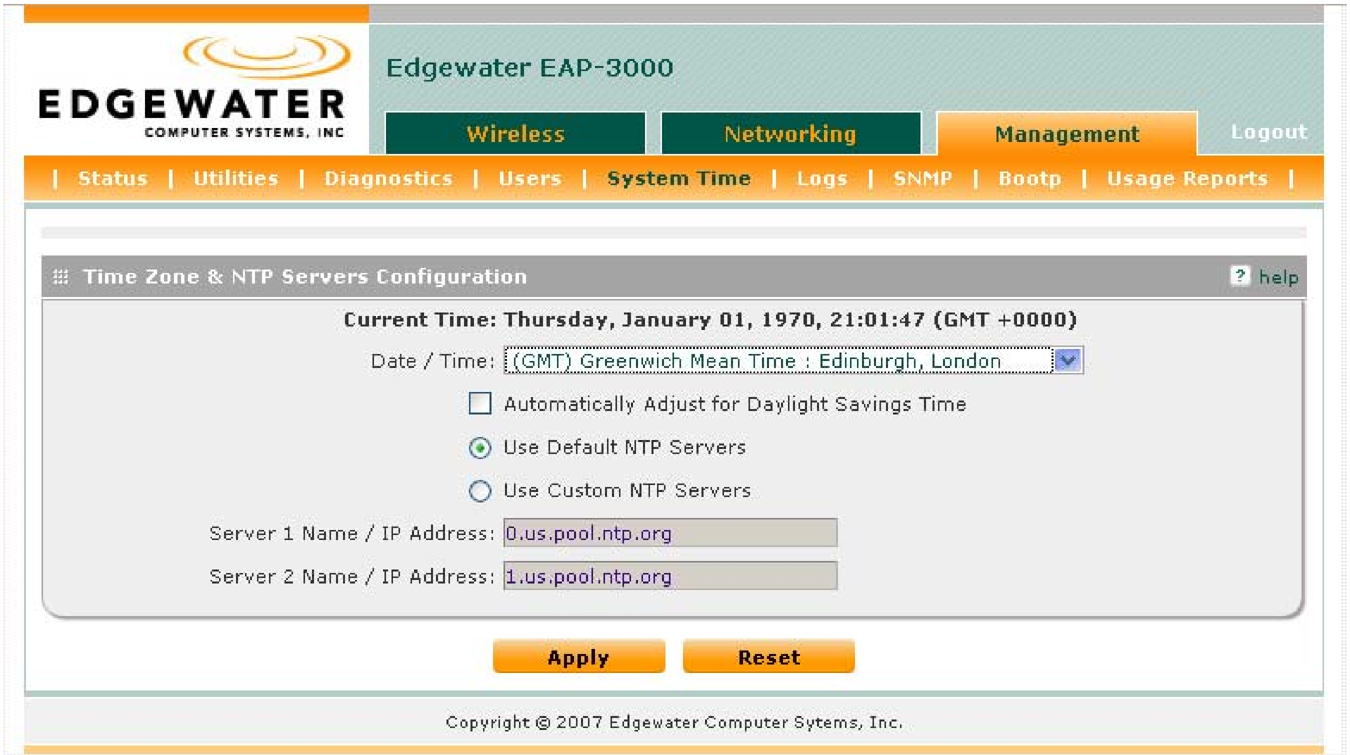
Click **Apply** to save your changes.

Click **Reset** to revert back to the previous settings.

5.3 Management -> System Time

Time Zones & NTP Servers Configuration

Select the Local Time Zone according to your region.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Management
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| Status | Utilities | Diagnostics | Users | System Time | Logs | SNMP | Bootp | Usage Reports |
Time Zone & NTP Servers Configuration
? help
Apply
Reset
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Current Time: Thursday, January 01, 1970, 21:01:47 (GMT +0000)

Date / Time: (GMT) Greenwich Mean Time : Edinburgh, London

□ Automatically Adjust for Daylight Savings Time

● Use Default NTP Servers

○ Use Custom NTP Servers

Server 1 Name / IP Address: 0.us.pool.ntp.org

Server 2 Name / IP Address: 1.us.pool.ntp.org

Configure NTP Server to have the device synchronize time with an NTP server.

If supported for your region, you can check **Automatically adjust for Daylight Savings Time.**

Use Default NTP Servers: If this is enabled, then time is updated regularly by contacting preconfigured default public NTP Servers on the Internet.

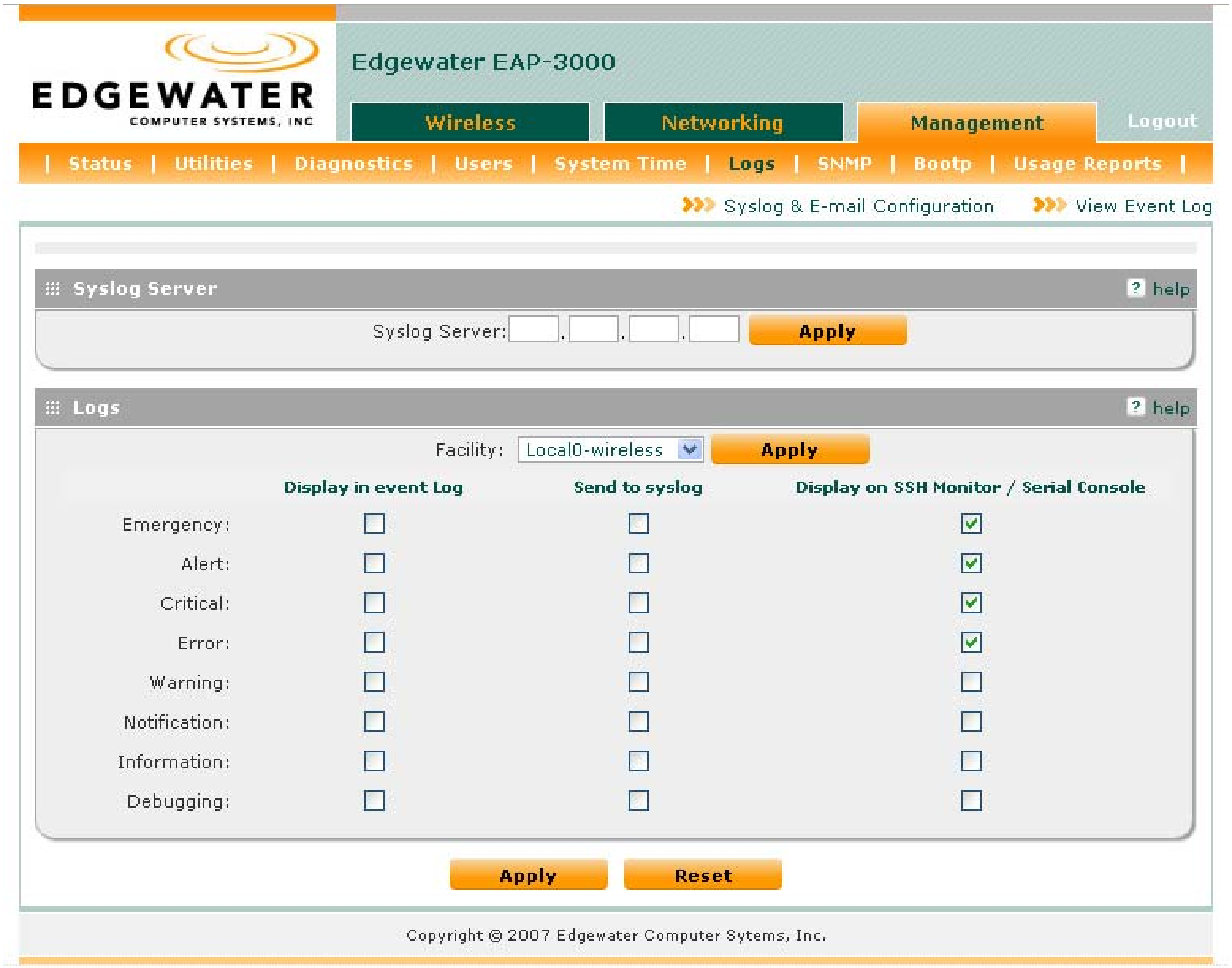
Use Custom NTP Servers: If you prefer to use a particular NTP server, enable this and enter the name or IP address of an NTP Server in the Server 1 Name/IP Address field. If required, you can also enter the address of another NTP server in the Server 2 Name/IP Address field.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

5.4 Management -> Logs

There are a variety of events that can be captured and logged for review. These logs can be sent to a server or emailed as configured.



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Wireless
Networking
Management
Logout
| Status | Utilities | Diagnostics | Users | System Time | Logs | SNMP | Bootp | Usage Reports |
Syslog & E-mail Configuration
View Event Log
Syslog Server
help
Apply
Logs
help
Apply
Apply
Reset
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Syslog Server: ___ . ___ . ___ . ___

Facility: Local0-wireless

	Display in event Log	Send to syslog	Display on SSH Monitor / Serial Console
Emergency:	□	□	☑
Alert:	□	□	☑
Critical:	□	□	☑
Error:	□	□	☑
Warning:	□	□	□
Notification:	□	□	□
Information:	□	□	□
Debugging:	□	□	□

The **Facility** dropdown allows you to select the type of functionality from which to generate logs: Kernel, Local0-wireless, or System.

Events that can be logged: select from **Emergency**, **Alert**, **Critical**, **Error**, **Warning**, **Notification**, **Information**, **Debugging**.

For each of these events, you may select how to receive notification: **Display in event Log**, **Notify via SNMP TRAP**, **Send to Syslog**, **Display on telnet / SSH monitor**.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

Management -> Logs -> Syslog & Email Configuration

The device can be configured to log and e-mail the selected events in the Logs page a specified e-mail address or a SysLog server.

Log Options

Log Identifier: Every logged message will contain a prefix for easier identification of the source of the message. The log identifier will be prefixed to both, e-mail and Syslog messages.

Enable E-mail Logs

This section is used to configure e-mail settings for sending logs.

E-Mail Logs is disabled by default. Select the **Yes** radio box to enable e-mail logs.

E-mail Server address: Enter the IP address or Internet Name of an SMTP server. The device will connect to this server to send the e-mail logs.

Return E-mail Address: Type the e-mail address where the replies from the SMTP server are to be sent; for example, failure messages.

Send To E-mail Address: Type the e-mail address where the logs and alerts are to be sent.

Respond to Identd from SMTP Server: Check this radio box to configure the device to respond to an IDENT request from the SMTP server.

Authentication with SMTP server: If the SMTP server requires authentication before accepting connections, select either Login Plain or CRAM-MD5 and enter the User Name and Password to be used for authentication. To disable authentication, select the No Authentication radio box.

Send E-mail logs by Schedule

To receive e-mail logs according to a schedule, select the appropriate schedule. To enable scheduling, configure the e-mail settings in the **Enable E-Mail Logs** section. To disable sending logs, select **Never**.

Unit: Select the period of time that you need to send the log: **Hourly**, **Daily**, or **Weekly**. To disable sending of logs, select **Never**.

This option is useful when you do not want to receive logs by e-mail, but want to keep e-mail options configured so that you can use the **Send Log** function from the **View Logs** page.

Day: If **Weekly** is selected, choose the day of the week.

Time: Select the time when logs should be sent.

Click **Apply** to save your changes.

Click **Reset** to revert to the previous settings.

5.5 Management -> Logs -> Event Logs

This section displays the logs from various events earlier configured to display in event log.